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# BIG DRY

## ENVIRONMENTAL IMPACT STATEMENT
## VEGETATION ALLOCATION

FEBRUARY 1982

## DRAFT

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
MILES CITY DISTRICT

I 1.98:

IN REPLY REFER TO

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
222 North 32nd Street
P.O. Box 30157
Billings, Montana 59107

Dear Reader:

The Big Dry Vegetation Allocation Draft Environmental Impact Statement is presented for your review and comment. The document describes vegetation allocations and recommended grazing management programs for 1.18 million acres of public lands administered by the Bureau of Land Management in the Big Dry Resource Area of the Miles City District. A preferred alternative and three other alternatives are presented for consideration. The four possible alternatives are described briefly in the abstract in the front of the document and more completely in Chapter 2. The environmental consequences of each alternative are considered in Chapter 4.

Written comments from interested citizens and public agencies will be accepted until March 26, 1982. Comments should be sent to Ray Brubaker, District Manager, District Office, BLM, P.O. Box 940, Miles City, Montana 59301.

After the comments received have been reviewed, a final environmental impact statement will be prepared. Unless the changes are extensive, the final statement may consist of only the comments, responses to the comments and errata sheets to update information contained in the draft document; therefore, interested parties should retain their copies of the draft EIS.

Hearings for public comment have been scheduled as follows:

Forsyth, Montana — March 1, 1982, 8:00 p.m. at the Rosebud County Library
Terry, Montana — March 2, 1982, 8:00 p.m. at the Prairie County Grazing District Office
Baker, Montana — March 3, 1982, 8:00 p.m. at the Fallon County Library

Testimony received through written comments or at the public hearings will be considered during preparation of the final environmental impact statement. No decision on the preferred vegetation allocation and grazing management program will be made until the final environmental impact statement is completed.

Sincerely yours,

Michael J. Penfold

Michael J. Penfold
State Director

Department of the Interior
Environmental Impact Statement

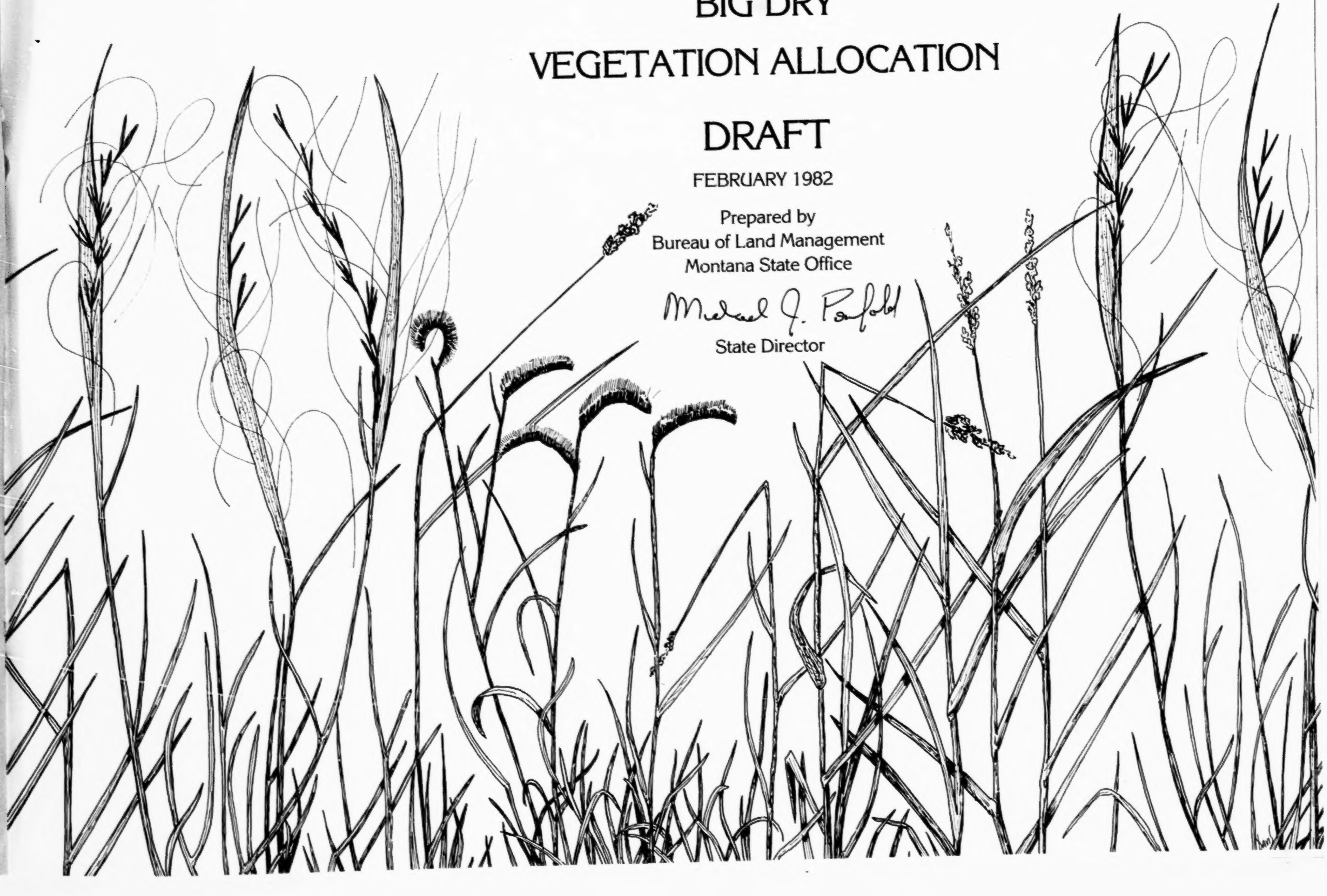
# BIG DRY
# VEGETATION ALLOCATION

## DRAFT

FEBRUARY 1982

Prepared by
Bureau of Land Management
Montana State Office

Michael J. Penfold
State Director



# UNITED STATES DEPARTMENT OF THE INTERIOR
# BUREAU OF LAND MANAGEMENT

# BIG DRY VEGETATION ALLOCATION
# DRAFT ENVIRONMENTAL IMPACT STATEMENT

## PORTIONS OF GARFIELD, ROSEBUD, McCONE, CUSTER, AND CARTER COUNTIES AND ALL OF DAWSON, FALLON, PRAIRIE, RICHLAND, AND WIBAUX COUNTIES IN MONTANA

This Draft Environmental Impact Statement (DEIS) discusses proposed vegetation allocations for about one million acres of public lands (of which 85% are in good to excellent condition) administered by the Bureau of Land Management in the Miles City District. Four alternative courses of action, including a preferred alternative, have been analyzed. Final vegetation allocations and management action will be decided from these alternatives. The environmental consequences of each alternative have been analyzed for both the period of implementation, between 1983 and 1988, and for the long term, the 15 years following implementation.

Alternative A, "Continued Development for Optimum Range Utilization," would have the management goal of keeping livestock and other uses in line with the estimated grazing capacity through continuation of rangeland improvements, grazing systems and monitoring programs. Thirty existing AMPs would be revised and 63 new AMPs would be implemented to bring 49% of the less than good land into good or better range condition. The remaining 51% (47,830 acres) of less than good lands are in holdings considered unsuitable for proper management. These small holdings are scattered among the remaining 684 permittees. This alternative would continue the present management system with only minimal increases resulting from improvement of the few areas presently in less than good condition. Allocations to both livestock and wildlife and other uses would increase in the long term due to improved ecological range condition. This is the BLM's preferred alternative.

Alternative B, "Enhanced Watershed Value and Wildlife Habitat," would reallocate 19% of the vegetation from livestock to nonconsumptive and wildlife uses, and would continue the 30 existing Animal Management Plans (AMPs) and implement 63 new AMPs. Range condition would be maintained or improved. Vegetation condition would improve on riparian areas around reservoirs, on floodplains and on erosion-susceptible areas. Wildlife habitat would improve. Rancher income would decrease, but total area earnings would increase in the short term.

Alternative C, "No Grazing," would eliminate livestock grazing on public land. No range improvements would be built or maintained unless deemed necessary for protection of watershed or wildlife resources. Ecological range condition of most rangelands would improve in the short term. Wildlife habitat would improve initially but would be negatively affected in the long term.

Rancher income would decline. Construction of 7,400 miles of fence would be necessary to implement this alternative.

Alternative D, "No Action," would freeze the current range program of 30 AMPs with continuation of current range allocations and no new range improvements being constructed. Ecological range and watershed condition would decline in the long term. Wildlife habitat would remain static or be reduced in quality. Fishery reservoirs would be adversely affected by accelerated sedimentation. Long term ranch income and employment would likely decline from decreased forage production.

Of the alternatives, Alternative C would have the greatest implementation cost while regional income would likely increase only in Alternatives A and B. Range condition would improve under Alternatives A and B, but would be adversely affected or decline in the long term under Alternative D. Under Alternative C range condition would improve to a near climax stage and then level off and stagnate on most soils in the long term.

Components of the four alternatives are presented for public review in this DEIS. The document is the text and map supplement. The location of the DEIS study area within the state is shown on Map 1-1 in Chapter 1.

For further information, contact Ray Brubaker, District Manager, Miles City District Office, Bureau of Land Management, P.O. Box 940, Miles City, Montana 59301 or phone (406) 232-4331.

FEBRUARY 1982

# SUMMARY

The Big Dry Draft Environmental Impact Statement (DEIS) includes the Bureau of Land Management's (BLM) northern division of the Miles City District, the Big Dry Resource Area. The total area of the Big Dry is around 10.8 million acres, encompassing all or parts of 10 eastern Montana counties. This area contains about 1.18 million acres of public lands administered by the BLM.

Soil and vegetation inventories, water resource surveys, social and economic surveys and other resource inventories were begun in 1977 and completed in 1981. Throughout the resource inventory and survey process, the public was asked to suggest issues and concerns on the use of public lands.

Public participation in BLM's planning process was solicited through individual interviews in the EIS area, newspaper articles and the mailing of more than 2,600 brochures to livestock operators using public lands, residents and interested groups in the area. About 40 comments were received as a result of this brochure. In addition, open house sessions were held in Terry and Baker, Montana March 23-24, 1981, to solicit responses from the public. A list of agencies and organizations consulted or commenting on public land issues can be found in Chapter 5.

Based on resource inventories, issues raised by the public and procedural requirements, four alternative courses of acton were developed. Alternative A, "Continued Development for Optimum Range Utilization," was selected as the preferred alternative because of the resource benefits, cost and public comment. After reviewing the draft EIS, decision-makers will select the final rangeland management program to be implemented on public lands in the Big Dry EIS area. This management program may be the preferred alternative or it may incorporate parts of all alternatives.

Major concerns raised by the public were:

> Livestock production, wildlife numbers and water development. Local residents expressed concerns relating to the control of undesirable plant species, control of prairie dogs and making more water available for livestock.
>
> Wildlife concerns of the public included balancing wildlife and livestock use and maintaining and improving wildlife habitat. Other public concerns centered on the protection of watershed and soil resources. Many people felt that things should be left as they are because long time resource conservation practices in effect over the years have maintained or improved resource conditions overall on both private and public lands. BLM resource specialists raised issues almost parallel to those of the public. Major concerns brought forth both by the public and by BLM specialists are considered in this DEIS.

The major livestock issue is the need to maintain or improve ecological range condition. Of the 1,178,777 acres of public lands in the EIS area, 2,223 acres are in poor ecological range condition, 93,268 acres are in fair condition, 1,004,061 acres are in good to excellent ecological range condition; and 19,254 acres are unclassified as to condition. An additional 59,971 acres are classed as tame pasture.

In this DEIS, the four alternatives from which the final grazing management program will be selected are titled: (A) Continued Development for Optimum Range Utilization, (B) Enhanced Watershed Value and Wildlife Habitat, (C) No Grazing and (D) No Action.

These alternatives were developed from information and recommendations in the Redwater, New Prairie, and Jordan-North Rosebud Management Framework Plans (MFPs). Recommendations from the Step II MFP provided the basis for Alternative A. Recommendations from Step I wildlife and watershed were used to develop the basis for Alternative B. Alternative D assumes a "freeze" on developments and use of existing information and projections without further development. Alternative C assumes total removal of livestock and projects range conditions without domestic grazing.

Proposals in Alternatives A and B would reduce the amount of range in poor and fair ecological range condition. Alternatives A and B increase the forage allocation to livestock in the long term.

Initial livestock animal unit months (AUMs) would remain the same in Alternatives A and D, decrease by 19 percent in Alternative B and decrease to zero in Alternative C. In the long term (15 years after implementation), Alternative C would result in no livestock AUMs; Alternative D would not change livstock AUMs and Alternatives A and B would increase the livestock AUMs above the short term projections. The preferred alternative would increase livestock forage by six percent, because of the implementation of mechanical and grazing treatments and the development of range facilities.

Both the public and BLM are concerned with maintaining adequate wildlife habitat while maintaining a balance between livestock and wildlife use.

Protecting soil by reducing erosion is another major concern of both the public and BLM resource specialists. Increasing vegetation cover through mechanical or grazing treatments would improve the capacity of the soil to absorb the water necessary for vegetation production. Increased absorption of moisture into the soil reduces runoff, erosion and maintains soil productivity. High levels of vegetation production would increase the amount of forage for both livestock and wildlife use. Other watershed concerns include limiting early season livestock use on wet soils in riparian zones to reduce soil compaction.

A summary of the environmental consequences for each of the four alternatives follows.

## Alternative A: Continued Development for Optimum Range Utilization

As the preferred alternative, this proposes revision while continuing operation of the 30 existing AMPs on 227,776 acres of public lands, implementation of 63 new AMPs on 294,798 acres and continued permitted grazing on 684 allotments, 651,781 acres, not proposed for AMP implementation.

Watershed condition would improve in the long term, with a reduction of sediment and water yields by approximately 20% and 18%, respectively.

Ecological range condition would be maintained or improved to good to excellent condition on most lands with a vegetation production increase of 54.5 million pounds. The vegetation allocations to livestock and wildlife would increase by six percent in the long term.

Wildlife habitat would improve with special consideration given to protect crucial wildlife habitat and wintering areas. Prairie dog control would be evaluated on a case-by-case basis in accordance with the statewide prairie dog management policy.

Improved watershed and ecological range condition would reduce the natural destruction of some cultural resource sites by erosion. Long term loss of scientific data could occur if sites were destroyed by ground disturbances resulting from implementation of range projects and land treatments. However, most range improvements would be located to avoid cultural sites.

Implementaton of this alternative would result in an increase of $205,638 in annual total income on 350 ranch operations. Total permit values would increase by $1,703,000, or 7% of the present total, in the long term. Social impacts to the ranching community would be positive in the short and long term.

Regional earnings would increase by $1,635,000 annually and employment would increase by 134 persons in the short term. There are no long term changes in either category.

Total implementation cost of this alternative would be $11,955,751.

## Alternative B: Enhanced Watershed Value and Wildlife Habitat

This alternative proposes continuing the 30 existing AMPs, implementation of 63 new AMPs and continue permitted grazing on 684 allotments unsuitable for AMP implementation.

Watershed condition would improve in the long term, with a reduction of sediment and water yields by approximately 28% and 23% respectively.

Range condition would be maintained or improved to good or excellent condition on most lands. Vegetation condition would improve in riparian areas, around reservoirs, on floodplains and erosion-susceptible areas. Livestock allocations would be reduced by 48,674 AUMs in the short term due to the reallocation of AUMs to nonconsumptive uses and wildlife. In the long term there would be a 7% increase of AUMs to livestock and a 6% increase to nonconsumptive uses and wildlife beyond the short term projections.

Wildlife habitat would improve for big game, upland game and waterfowl as would nongame habitat and 33 additional fisheries reservoirs are proposed.

Improved watershed and ecological range condition would reduce the natural destruction of some cultural resource sites by erosion. Long term loss of scientific data could occur if sites were destroyed by ground disturbances resulting from implementation of range projects and land treatments. However, most range improvements would be located to avoid cultural sites.

This alternative would result in a short term annual decrease of $544,306 on 418 ranch operations. Long term annual decreases would be $481,435 on 335 operations and long term annual increases would be $90,938 on 176 operations. Total permit values would decrease by $4,866,000 in the short term and $3,264,000 in the long term.

Ranchers' attitudes toward BLM would be negative due to decreased forage allocation to livestock. Recreationist and environmentalist attitudes would be positive due to increased wildlife habitat and reduced livestock conflicts.

Total earnings would increase by $1,358,000 annually in the short term due mostly to increased construction, and decrease by $231,000 annually in the long term. Total employment would increase by 106 people in the short term and decrease by 23 persons in the long term.

Total implementation cost of this alternative would be $15,476,551.

## Alternative C: No Grazing

This alternative would eliminate livestock grazing on public lands affecting 777 allotments. No range improvements would be built or maintained unless the improvements were considered necessary for watershed or wildlife resources.

Watershed conditions would improve with a reduction of sediment and water yield by 54% and 30%, respectively.

Ecological range condition of most rangelands would improve while areas occupied by prairie dogs would decline or become poor. Noxious weeds would be controlled when threatening to private lands.

Wildlife habitat would improve initially, but would trend toward a climax vegetation which is a less desirable habitat. Prairie dog control would be necessary to protect private lands and crucial wildlife habitat affected by expansions of existing towns.

In short and long term, income would decrease on 608 operations (see Appendix 3.9). The decrease in net income would be 24% of the current total.

Rancher attitudes would be extremely negative toward this alternative.

Total earnings would decrease $501,000 annually in the short term and $3,009,000 annually in the long term. Total employment would have a net decrease of 60 people in the short term and 303 people in the long term.

Total implementation of this alternative would be $16,944,100 (the cost to the private landowners to fence off public land with approximately 7,400 miles of fence).

## Alternative D: No Action

This alternative would freeze the current range program of 30 AMPS. Vegetation allocations would remain the same, regardless of range condition. AMPs in effect would continue, but no new range improvements would be developed. Maintenance of current improvements would be allowed.

Watershed condition would decline with an increase in sediment and water yields of 15% and 12%, respectively.

Ecological range condition would decline in the long term. Production would also decline in the long term due to the spread of prairie dogs, noxious weeds and lack of responsive grazing management.

Wildlife habitat would remain static or be reduced in quality with the lack of rest or deferment grazing treatments. Prairie dog towns would be allowed to expand. Some existing fisheries reservoirs would be lost as viable fisheries because of accelerated sedimentation.

No changes in ranch income and employment can be quantified in this alternative. However, reductions in both are likely in the long term as livestock forage production decreases.

Rancher attitudes toward this alternative would be negative because of a deteriorating range condition and less opportunity for income gain.

There would be no implementation cost for this alternative as maintenance to fences would be the responsibility of the operator and by 1984, maintenance cost of reservoirs, springs, etc., would also be their responsibility.[1]

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[1] BLM Range Improvement Policy, 1981

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# CHAPTER 1

# PURPOSE AND NEED

## INTRODUCTION

The Big Dry Environmental Impact Statement (EIS) analyzes the resource, social and economic impacts of instituting a rangeland management program in the northern portion of the Miles City District of the Bureau of Land Management (BLM) in Montana.

The BLM is responsible for the management of livestock grazing on public lands in a manner that maintains or improves the public land resources including soil, water, vegetation, and wildlife habitat. The Bureau's principal authority to manage public lands is found in the Taylor Grazing Act of 1934, Federal Land Policy and Management Act of 1976, and the Public Rangelands Improvement Act of 1978.

## BASIS

This EIS is written in compliance with the National Environmental Policy Act of 1969, Council on Environmental Quality regulations, and in specific response to litigation in the Natural Resources Defense Council et al versus Rogers C. B. Morton et al. 1973 (U.S. District Court for the District of Columbia, ref. Case No. 1983-73).

The proposed action is to develop a livestock grazing program consisting of vegetation allocation necessary to equitably allocate the vegetation among competing consumptive and nonconsumptive uses, and implementation of grazing systems and range improvement projects to maintain or improve vegetation yields and watershed conditions. The purpose of the proposed action is to implement decisions needed for management, protection, and enhancement of the rangeland resources. The proposal would cover a 15-year period from the time actions are implemented.

## SETTING

The planning area selected for the Big Dry EIS consists of all public lands in the Big Dry Resource Area in the Miles City District lying to the south and east of those lands analyzed in the Missouri Breaks EIS. (See Map 1, Map Supplement.) Involved are all or portions of Garfield, McCone, Richland, Dawson, Rosebud, Prairie, Custer, Fallon, Wibaux and Carter Counties.

The Big Dry EIS effort relates to the vegetation allocation capability of an estimated 1.18 million acres of public lands, potential impacts which can be anticipated from the allocation process, plus all reasonable alternatives surfaced during the process. Map 1-1 shows the resource area and planning units. Table 1-1 is a summary of the Big Dry land status. The major drainages include the Missouri, Yellowstone, Powder and Musselshell Rivers.

The Big Dry EIS area of eastern Montana (Map 1-1) is characterized by rolling prairies, broken by drainages which are sometimes sharply incised to include river breaks landforms. Population in the area is mainly concentrated in the Yellowstone River Valley. Many of the ranch operations are remote from the river valley towns.

Total acreage in the ten-county EIS area is approximately 10.8 million acres, including 1.18 million acres of public lands under BLM management (see Map 1, Map Supplement). Most of the public lands are concentrated in Prairie and Fallon Counties and include substantial amounts of land utilization (LU) lands reacquired by the government under the Bankhead-Jones Act of 1937.

The EIS area includes a total of 777 allotments involving ranch operations. Many of these include some grain and hay farming in combination with livestock production. There are three cooperative state grazing districts and two grazing associations in the EIS area. There are 1,178,777 acres of public lands that are allotted to livestock grazing (Map 2, Map Supplement). These lands are administered through the Big Dry Resource Area Office of the Miles City District.

While there are a few large contiguous tracts of public land, the primary land ownership pattern consists of scattered tracts of public lands intermingled with private and state lands. These land patterns strongly affect grazing management options. Private lands are usually located along drainage bottoms and on the more productive uplands. In addition to livestock grazing, public lands provide wildlife habitat, recreation, and other activities

TABLE 1-1
BIG DRY LAND SUMMARY

| MANAGEMENT FRAMEWORK PLAN (MFP)* | BLM ADMIN. SURFACE ACRES | PERCENT OF TOTAL ACREAGE | OTHER SURFACE | TOTAL SURFACE |
|---|---|---|---|---|
| Redwater | 181,800 | 4.0 | 4,381,200 | 4,563,000 |
| Jordan - No. Rosebud | 252,100 | 7.8 | 2,976,400 | 3,228,500 |
| New Prairie | 709,150 | 23.4 | 2,323,220 | 3,032,370 |

*These acreage figures do not agree with those in Table 1-2 because allotments cross planning unit, planning area and EIS area boundaries.

compatible with multiple resource management.

Table 1-2 summarizes the land ownership and administrative responsibility for federal land surface in the EIS area.

TABLE 1-2
LAND OWNERSHIP IN THE BIG DRY EIS AREA

| | Acres | Percent of Total |
|---|---|---|
| Federal (BLM Administered) | 1,172,724 | 10.2 |
| *Federal (Bureau of Reclamation) | 52,834 | 0.5 |
| Federal (USFWS—Lame Steer National Wildlife Refuge) | 1,411 | 0.01 |
| Federal (USDA Ft. Keogh Agri. Exper. Station) | 9,843 | 0.09 |
| Private | 9,567,497 | 83.3 |
| State | 675,046[1] | 5.9 |
| TOTAL | 11,479,355 | |

[1] Includes State Fish & Wildlife lands

*NOTE: Bureau of Reclamation withdrawals encompass private lands, most of which have been patented after the withdrawal went into effect. These withdrawals still remain on the books, however.

## MANAGEMENT GUIDANCE AND RESOURCE COORDINATION

The administration of public lands involves the complex interdependence among lands of different ownership, uses and capabilities. The EIS area contains private lands as well as lands managed by the Montana Department of State Lands, and the Montana Department of Fish, Wildlife and Parks.

Development of the proposed rangeland management program is guided by mandates to manage the public lands for multiple use and sustained yield under the Federal Land Policy Management Act (FLPMA) of 1976 (90 Stat. 2743). The system begins with land use planning. This involves multidisciplinary resource inventories contained in the Unit Resource Analysis (URA) and social and economic data analyzed in the Planning Area Analysis (PAA). Management decisions are then developed in the Management Framework Plan (MFP). MFP Step II recommendations provided the basis for Alternative A and MFP Step I recommendations provided the basis for Alternative B. Alternative C assumes no livestock grazing and Alternative D is based upon the present grazing management system and vegetation allocations.

The EIS area includes the Redwater, New Prairie, and Jordan-North Rosebud planning areas. The Redwater MFP was completed in September 1979. The Jordan-North Rosebud and New Prairie MFPs were completed through Step 2 (Multiple Use Recommendations) in December 1981. Step 3 decisions will be made following completion of this EIS. Some revisions of the Redwater MFP may be required, depending on EIS results.

These planning documents are on file at the Miles City BLM District Office.

Following the EIS, individual allotment management plans (AMPs) will be prepared. The analysis developed in the EIS will help guide AMP development. The full range of Soil Vegetation Inventory Method (SVIM) data will also then be available to help select the proper grazing systems, treatments, range improvements, and grazing adjustments to implement individual AMPs.

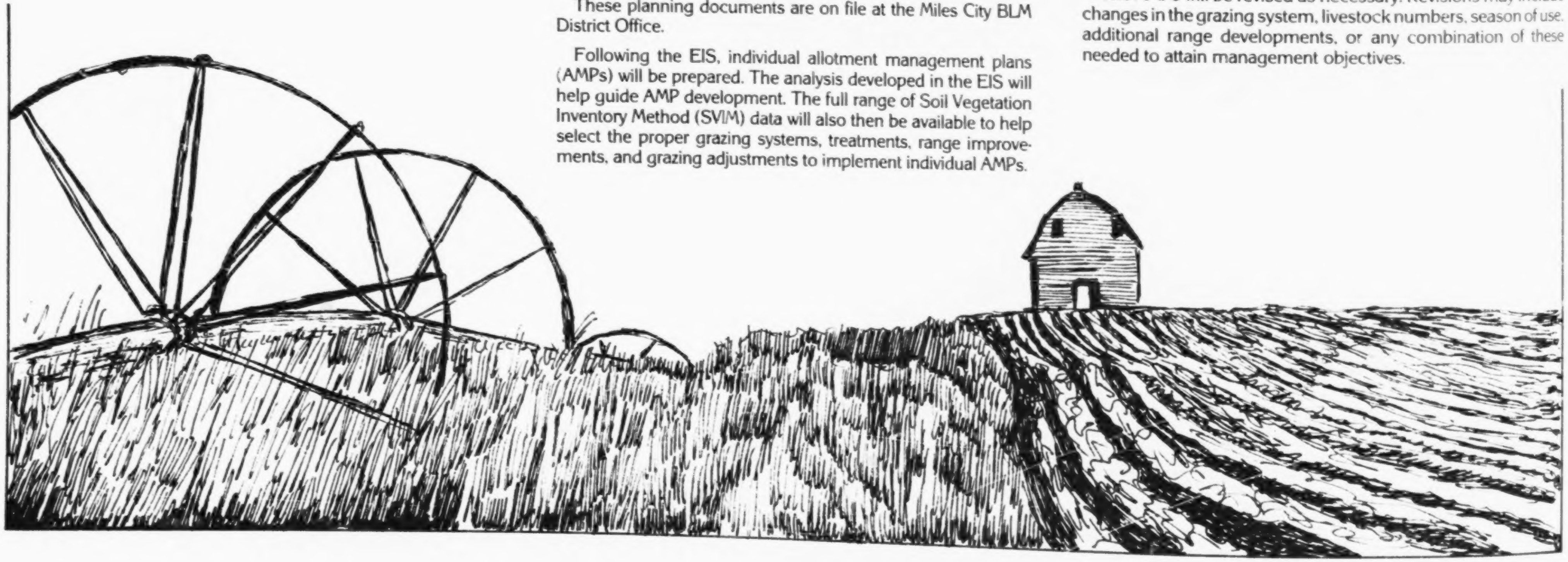
## MONITORING AND EVALUATION OF AMPS

The key to success of any grazing management plan is a system of monitoring and evaluation that ensures the stated objectives are being met.Each allotment has different potentials, opportunities, problems, and objectives. The AMP may involve various levels of management intensity, including only documentation of present management. The monitoring and evaluation plan, therefore, must be flexible, cost effective, and tailored to the needs of the allotments. The basic monitoring and evaluation plan outline (or matrix) for the Big Dry EIS area is included as Table 1-3.

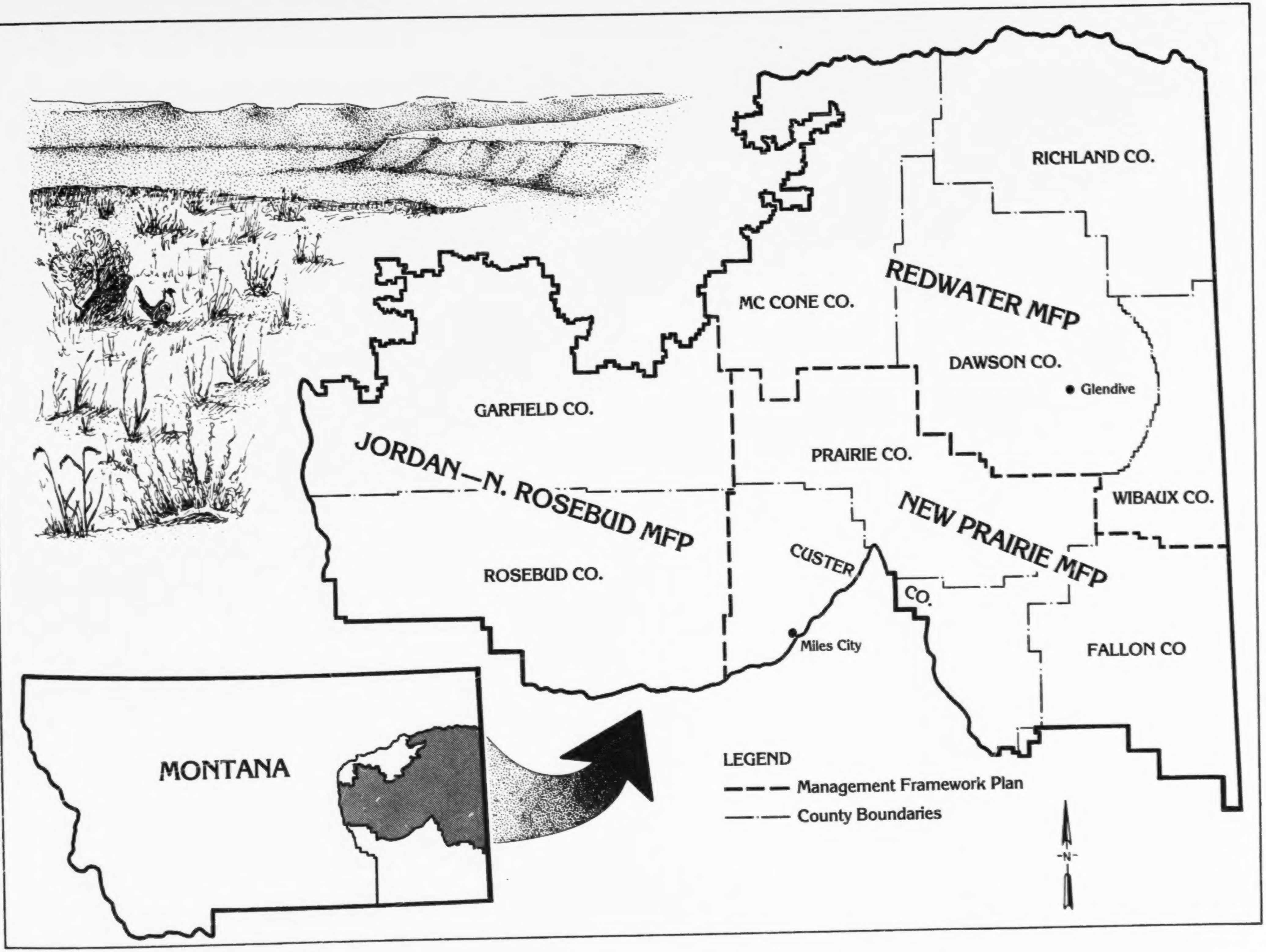
Typical monitoring activities include regular visits (preferably with the ranch operator) to observe how the system is operating and to resolve any problems. This involves checking utilization levels in each pasture, collecting actual use information, and conducting any other necessary studies. These studies may include wildlife habitat, riparian vegetation, aquatic habitat, and water quality.

Allotment evaluation will normally be conducted at longer intervals than monitoring activities (which are a part of evaluation) and will measure changes in range condition, vegetation cover, litter, community age structure, plant vigor, and watershed condition. Various trend study methods would be employed to document trend in key areas. Comparison of vegetation production on comparable sites must be normalized to account for precipitation and soil series differences.

The AMPs will be revised as necessary. Revisions may include changes in the grazing system, livestock numbers, season of use, additional range developments, or any combination of these needed to attain management objectives.



## MAP 1-1. LOCATION OF BIG DRY EIS AREA



## TABLE 1-3
## MONITORING PLAN MATRIX

This matrix displays the types, frequency and responsibility for monitoring resources in the Big Dry Area. Intensive monitoring of areas selected for comparison will provide bench mark or control data for specific or general area monitoring. Monitoring will consist of analysis of data collected by BLM and, in some cases, by other agencies or individuals. Concern areas include (but are not limited to): severe erosion potential areas, floodplains, crucial wildlife winter ranges, riparian zones and woody draws, wetland and aquatic areas, AMPs and low condition areas.

| | DISCIPLINES WITH MONITORING INTERESTS | | | | | |
|---|---|---|---|---|---|---|
| ELEMENT | RANGE | SOILS | WATERSHED | WILDLIFE | FREQUENCY | RESPONSIBILITY |
| Soils | | | | | | |
| Nutrients | | X | | | Annual | Soils |
| Productivity | X | X | | X | Annual | Range |
| Soil Moisture | X | X | | | Monthly during growing season | Soils |
| Physical Properties | | X | | | Annual | Soils |
| Water | | | | | | |
| Ground | | | X | | Quarterly | USGS and State |
| Surface | | | | | Monthly during flow periods | USGS, State, Watershed |
| Flow | | | X | X | | |
| Quality | X | | X | X | | |
| Sediment | | | X | X | | |
| Vegetation | | | | | | |
| Utilization/Carryover | X | X | X | X | Annual/Semi Annual | Range/Wildlife |
| Condition | | | | | End of grazing cycle but not less than 5 years | Range/Wildlife |
| Ecological | X | X | X | X | | |
| Habitat | X | | | X | | |
| Trend | X | | | X | End of grazing cycle but not less than 5 years | Range/Wildlife |
| Actual Use | X | | | | Annual | Range |
| Productivity | X | X | X | X | End of grazing cycle but not less than 5 years | Range |
| Density | X | X | X | X | End of grazing cycle but not less than 5 years | Range/Wildlife |
| Climate | X | X | X | X | As needed | Primarily NOAA |
| Animals (Wildlife, Livestock) | X | | | X | Annual & 3 year cycle | Operators and MTDFWP |

# CHAPTER 2

# THE ALTERNATIVES

## VEGETATION ALLOCATION ALTERNATIVES AND THE PREFERRED ALTERNATIVE

The alternatives are described in both the short and long term. The short term is a five-year implementation period during which most proposed actions would take place. An exception to this time frame would be the proposed land treatments. Before these treatments are implemented, grazing systems may need to be carried out for a longer period to determine if further treatment is needed. All responses to range developments would be assumed to take place in the long term, the 15 years after implementation of an action.

Long term vegetation allocations would be 25 percent to livestock and 75 percent to nonconsumptive and wildlife uses in the first two alternatives discussed. Allocations for nonconsumptive vegetation uses exceed the amount of vegetation removed by consumptive use in all alternatives.

Due to the limited data on vegetation and production, several assumptions have been made in computing allocation levels for the various alternatives. Since these assumptions are based on professional judgment and current ecological range condition information in the EIS area, it is believed that the allocations are valid. However, until the validity of the allocations can be verified by BLM approved field surveys and studies on allotments, they will be considered as "target allocations." See Appendix 2.3 for the descriptions of the computations made to arrive at the allocations to be found in Appendix 2.4. Assumptions made in the computations for current vegetation allocations are as follows:

1. Livestock licensed use during 1981 was 98.5 percent (249,279 of 253,075 AUMs which is 25% of the total vegetation base) of the vegetation allocated to livestock.

2. Wildlife utilize about 5 percent (35,204 AUMs) of the vegetation allocated to nonconsumptive and wildlife uses (3 percent of the total vegetation based on Montana Department of Fish, Wildlife and Parks population estimates valid only for the summer of 1980). BLM biologists and range conservationists and Montana State FWP personnel agree that the present wildlife (big game) populations in the EIS area are generally provided for adequately under current allocations. Exceptions are local situations that would be accounted for in the development of AMPs.

3. With proper consumptive use assumed, vegetation reserved for range maintenance and watershed protection is 50 percent (506,170 AUMs).

Cost estimates for each alternative are made with the understanding that any proposed range development will be modified or reduced in scale to avoid cultural sites that would require major excavation.

Table 2-1 shows a summary of data for each of the four alternatives.

### Alternative A: Continued Development for Optimum Range Utilization

This has been selected as the preferred alternative because of two factors. Analysis of the alternative by the District and Area Managers shows that the management goal of bringing livestock and other uses into line with the estimated grazing capacity, as outlined by the MFP Step II recommendations, can be reached through rangeland improvements, grazing systems and monitoring programs.

Secondly, public response received during the scoping process revealed a strong desire for continuing management near its present level with only minimal increases, targeting only areas in less than good condition for improvement.

This alternative proposes optimum range utilization. Emphasis for improvement is placed on areas identified as being in less than good range condition. The present management program currently provides 253,075 AUMs to 777 allotments for grazing uses and 759,255 AUMs to nonconsumptive and wildlife uses. Long term allocations, due to increased vegetation production through grazing systems and various land treatments, will be 270,115 AUMs to livestock and 810,345 AUMs to nonconsumptive and wildlife uses (Table 2-2). These vegetative increases are distributed on the basis of 25 percent to livestock and 75 percent to nonconsumptive and wildlife uses.

To support these allocations, 30 existing AMPs totaling 227,776 acres would be revised. Where monitoring indicates it is necessary (Appendices 2.8 and 3.1), 63 new AMPs affecting 294,798 acres would be developed. Six hundred and eighty-four allotments of 651,781 acres, would not be considered for AMPs at this time, because the allotments are too small or the majority of the land is private. A total of 4,442 acres remain as unallocated land in scattered, small tracts throughout the resource area. AMPs would be implemented on the average of ten per year.

The 63 proposed AMPs were selected by a system that considered acreage, range condition, public land percentage, watershed values or concern, and wildlife habitat values. Appendix 2.5 summarizes AMP rating criteria and factors in evaluation and implementation priority. On-the-ground inspections may reveal the need to substitute allotments which are as yet unscheduled. While it is expected that AMPs would continue to be developed beyond the short term implementation period, the analysis is limited to what is expected to occur in the short term to provide a comparison between the four alternatives in a common time period.

Grazing management will include monitoring of livestock grazing, while maintaining or improving range condition management would be in one of three categories: allotment management plans (AMPs), season and number, or custodial. Various grazing systems including rest rotation, deferred rotation, deferred, seasonal, short duration, or other systems which are variations or combinations of these would be applied. Season and number allotments would generally have deferred or seasonal systems, while custodial allotments would have seasonal use coordinated with the private land where the public land is a very small part of

the allotment and/or the goals of management could be met with this management level.

Development of range improvements on erosion susceptible areas will be avoided during the April-June period maintenance and new construction would not be allowed during wet periods and range improvements would not generally be located on floodplains. Soil, watershed and plant phenology capabilities will be considered when it is necessary to graze on floodplains during this period. Improved management and use supervision would result in improvement of riparian areas.

Land treatments would be implemented on about 128,000 acres when grazing treatments have not achieved objectives. About 230 miles of management fences would be needed to support grazing or land treatments and these would be built to assure movement of wildlife. There would also be 969 new water sources developed. Those identified for wildlife needs would be fenced, with water gaps for livestock access.

Control of noxious weeds such as leafy spurge, canada thistle, cocklebur and the knapweeds, is proposed for 4500 acres, using 2,4-D, Tordon and Roundup or any new herbicide providing more effective control. Biological control will be considered if proved effective. Special care would be taken with the use of pesticides around reservoirs and crucial wildlife habitat.

Control of prairie dogs on 2900 acres would be carried out in accordance with the statewide prairie dog management policy (Appendix 2.6) using zinc phosphide treated oats.

The estimated cost of range improvements is $11,955,751, based on current average cost per improvement (Appendix 2.7). Reservoirs that will be fenced for wildlife needs have not been identified and the additional cost is not included in the estimate.

TABLE 2-1
SUMMARY DATA FOR FOUR ALTERNATIVES

| | | ALTERNATIVE A Continued Development for Optimum Range Utilization | ALTERNATIVE B Enhanced Watershed Value and Wildlife Habitat | ALTERNATIVE C No Grazing | ALTERNATIVE D No Action |
|---|---|---|---|---|---|
| Existing AMPs | #(acres) | 30(227,776) | 30(227,776) | 0 | 30(227,776) |
| Proposed AMPs | #(acres) | 63(294,798) | 63(294,798) | 0 | 0 |
| Non-AMPs | #(acres) | 684(651,781) | 684(651,781) | 0 | 747(946,579) |
| Unallocated Lands | acres | *4,422 | 4,422 | 1,178,777 | 4,422 |
| | TOTALS | 1,178,777 | 1,178,777 | 1,178,777 | 1,178,777 |
| Initial AUM Allocations | | | | | |
| Livestock | | 253,085 | 204,411 | 0 | 253,085 |
| Nonconsumptive and Wildlife Uses | | 759,255 | 807,929 | 1,012,340 | 759,255 |
| | TOTALS | 1,012,340 | 1,012,340 | 1,012,340 | 1,012,340 |
| Long-Term AUM Allocations | | | | | |
| Livestock | | 270,115 | 220,439 | 0 | 253,085 |
| Nonconsumptive and Wildlife Uses | | 810,345 | 860,021 | 1,012,340 | 759,255 |
| | TOTALS | 1,080,460 | 1,080,460 | 1,012,340 | 1,012,340 |

*An additional 4,074 acres of land was withdrawn from grazing use in the Terry Badlands in 1966 and remains unallocated. This land is not included in this EIS discussion and analysis.

**A 19% reduction from Alternative A: 37,803 AUMs for crucial wildlife habitat
10,871 AUMs for spring deferment
Total Reduction: 48,674 AUMs

## Alternative B: Enhanced Watershed Value and Wildlife Habitat

In this alternative, particular emphasis would be placed on the watershed and wildlife resources. This analysis shows the benefits and disadvantages of giving priority in vegetation allocation and range management to resources other than livestock forage production while allowing light to moderate grazing use by livestock.

Initial allocation of vegetation would be 20 percent to livestock and 80 percent to nonconsumptive and wildlife uses. Livestock allocations in this alternative are 204,411 AUMs, 19 percent lower than the current permitted use of 253,085 AUMs. Initial allocations to nonconsumptive and wildlife uses are 807,929 AUMs. Long term allocations, based on projected increases in vegetation production (due to land treatments and various grazing systems) are 220,439 AUMs to livestock grazing and 860,021 AUMs to nonconsumptive and wildlife uses. See Table 2-2 for summaries of allocations by alternative and Appendix 2.4 for specific allotment information.

The 30 existing AMPs would be continued and 63 allotments would be considered for AMP implementation. Monitoring would be done to maintain or improve range condition. Grazing treatments, including rest and/or deferred grazing and AMP objectives would be governed to meet the resource objectives of deferring grazing on floodplains and erosion susceptible areas during April, May and June and eliminating grazing on crucial wildlife winter range and riparian areas. Livestock would be excluded from reservoirs identified for wildlife needs with no provisions included for livestock watering.

Crucial wildlife habitat involving 193 allotments and 179,988 acres is identified on Map 2. This habitat reservation would reduce livestock allocations by 37,803 AUMs. An additional 10,871 AUMs would be lost through spring deferment, equaling the 48,674 AUM (19%) reduction in livestock allocations.

Mechanical treatments (Appendix 2.8) and associated grazing treatments could occur on about 128,000 acres in this alternative. Approximately 230 miles of management and 1,532 miles of exclosure fences built to restrict livestock use of crucial lands with minimal restriction to wildlife movement and 969 new water developments are also proposed.

Chemical control of noxious weeds is proposed for 4500 acres. Special care would be taken with the use of pesticides around reservoirs and crucial wildlife habitat. Black-tailed prairie dog ecosystems would be protected and maintained, being controlled only if they threaten private lands and/or crucial wildlife habitat.

The estimated cost of range improvements in this alternative is $15,476,551, based on current average cost per improvement (Appendix 2.7). Reservoirs that would be fenced to exclude livestock have not been identified and the additional cost is not included in the estimate.

## Alternative C: No Grazing

No livestock would be permitted to graze on public lands in this alternative. The analysis provides a basis of comparison for the environmental, social and economic consequences of the other alternatives.

Current grazing privileges would be revoked, including the present 30 AMPs. All agreements with cooperative state grazing districts would be affected as well. No range improvements would be built or maintained unless the improvements were considered necessary for watershed or wildlife resources.

This program would eliminate the current permitted livestock use of 253,075 AUMs. In the worst-case analysis, BLM would require fencing of public lands to prevent livestock trespass. More than 7,400 miles of fences would be necessary for this undertaking, costing $16,944,100, according to current cost estimates (Appendix 2.7). This would be a cost to the adjacent private landowners.

## Alternative D: No Action

This alternative would "freeze" the current range program as it is today. Initial and long term allocations under this alternative, regardless of range condition, would be 253,085 AUMs to livestock and 759,255 AUMs to nonconsumptive and wildlife uses as summarized in Table 2-1 and detailed by allotment in Appendix 2.4. AMPs in effect would continue but no new range improvements (reservoirs, fences, mechanical or chemical treatments, or pipelines) would be developed. Changes in levels of permitted livestock use would not be allowed, regardless of need, and no new AMPs would be implemented. Maintenance of current improvements would be allowed.

Essentially all future options in range management would be eliminated in this alternative. There would be no opportunity to correct erosion problems, to increase or decrease livestock numbers, to change kinds of livestock, to adjust seasons of use or to improve range management.

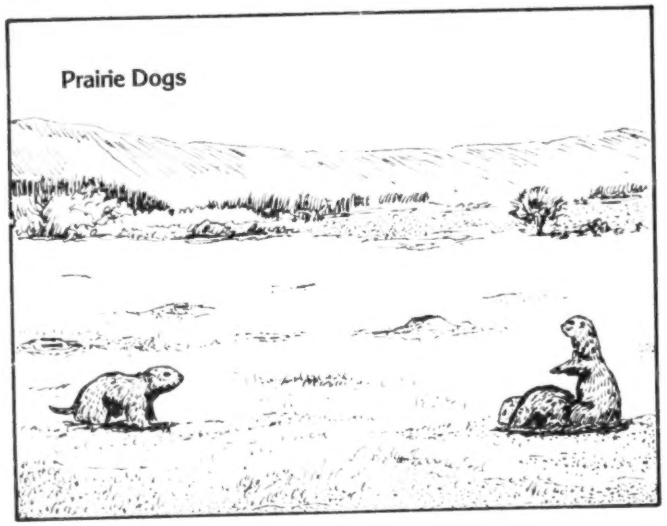
By freezing the present use of vegetation, BLM and the public can view the consequences of continuing present range trends in the Big Dry EIS area. The analysis shows future conditions of soil, vegetation and watershed.

There would be no implementation costs for this alternative as fence maintenance is the responsibility of the operator and by 1984, maintenance cost of reservoirs, springs, etc., would also be their responsibility.

**TABLE 2-1 (Continued)**
**SUMMARY DATA FOR FOUR ALTERNATIVES**

| | | ALTERNATIVE A Continued Development for Optimum Range Utilization | ALTERNATIVE B Enhanced Watershed Value and Wildlife Habitat | ALTERNATIVE C No Grazing | ALTERNATIVE D No Action |
|---|---|---|---|---|---|
| Grazing Treatments On Existing 30 AMPs | | | | | |
| 26 | (acres) | *DR (199,551) | DR (199,551) | — | DR (199,551) |
| 3 | (acres) | **RR ( 24,639) | RR ( 24,639) | — | RR ( 24,639) |
| 1 | (acre) | Not Implemented ( 3,586) | Not Implemented ( 3,586) | — | Not Implemented ( 3,586) |
| Mechanical Treatments | acres | 127,929 | 127,929 | 0 | 0 |
| Chemical Treatment Noxious Weed Control | acres | 4,500 | 4,500 | As needed to protect private lands & crucial wildlife habitat | 0 |
| Prairie Dog Control | | 560 | As needed to protect private lands & crucial wildlife habitat | 0 | |
| Water Developments # | | 969 | 969 | As needed for wildlife and watershed | 0 |
| Additonal Fences | (miles) | 230 | ***1,762 | 7,367 (to fence BLM lands off) | 0 |

*Deferred rotation
**Rest Rotation
***See Chapter 4, Alternative B, Livestock



# SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE

A comparison of the impacts on major resources is presented in Table 2-2. It was found that there would be no significant impacts and no significant differences in impacts between alternatives for climate, air quality and geology. These components are therefore not included in the summary table.

Quantification of resource factors is given when possible. The reference point for determining change is the existing situation. During the years 1983-88, the selected grazing management alternative or combination of alternatives would be implemented. Short term impacts are those that would occur during this implementation period, primarily from range developments. Long term impacts would occur approximately by the year 2003. The following discussion emphasizes the most significant impacts by alternative. The preferred alternative, based on benefit-cost analysis and public comment, is Alternative A, "Continued Development For Optimum Range Utilization."

## Alternative A: Continued Development For Optimum Range Utilization

Watershed condition would improve in the long term as sediment yield would be reduced by 20 percent and water yield by 18 percent. Soil losses from range developments would be an insignificant short term consequence. Consumptive water use by livestock would increase slightly. More vegetation production would result in allocating 50 percent of the increase to nonconsumptive uses, improving watershed protection.

Ecological range condition would be improved or maintained in good to excellent condition. Areas in less than good condition (155,462 acres) would improve in condition with a resultant increase of vegetation equivalent to 68,120 AUMs.

Riparian vegetation along streams and below reservoirs would increase. Livestock, nonconsumptive uses and wildlife would all realize a 6 percent increase of AUMs from their present allocations.

Increases in residual vegetation from rest and deferment would improve habitat conditions for big game, upland game birds and nongame wildlife. The high value riparian habitat, reservoir shoreline and saline seep vegetation would improve significantly because of fencing or periodic rest and deferment treatments.

Reservoirs identified as suitable for fisheries would be fenced. The number of prairie dog towns would be controlled if significant range resource damage is caused.

Improved watershed and ecological range conditions would reduce the natural destruction of some cultural resource sites by erosion. Long term loss of scientific data could occur if sites were destroyed by ground disturbances resulting from implementation of range projects and land treatments. However, most range improvements would be located to avoid cultural sites.

A long term economic gain ($205,638 annually) would be realized by 350 ranch operations. Permit values would increase by $1,703,000. There would be no change in ranch employment in the short or long term. These increases would improve the social well-being of approximately 350 ranch families in the long term.

The attitudes of ranchers toward BLM resulting from increased forage allocations would be positive. The attitudes of recreationists and environmentalists would generally favor multiple use of public lands and would favor the proposed action.

Long term regional earnings would increase by $1,635,000 annually and employment would increase by 134 people.

The total implementation cost of this alternative would be $11,955,751.

## Alternative B: Enhanced Watershed Value and Wildlife Habitat

Sediment and water yields would decrease by 28 and 23 percent, respectively, which would improve water quality. Consumptive use of water by livestock would increase slightly. Improvements in watershed condition would be due mainly to deferment of grazing for 3 months in the spring.

The proposed land treatments would improve ecological range condition. Of the resultant increase in vegetation, 25% would be allocated to livestock. Forage allocations to livestock would decrease by 48,674 AUMs initially, but would increase in the long term to 220,439 AUMs or a 7% increase.

More residual vegetation would result from a July 1 deferment as well as other rest or deferment treatments on AMPs improving big game, upland game bird and nongame wildlife habitat. Prairie dog towns would consume additional acreage and reduce additional livestock forage. Thirty-three additional fisheries reservoirs are proposed which would be fenced, removing approximately 50 AUMs from livestock use.

Improved watershed and ecological range conditions would reduce the natural destruction of some cultural resource sites by erosion. Long term loss of scientific data could occur if sites were destroyed by ground disturbances resulting from implementation of range projects and land treatments. However, most range improvements would be located to avoid cultural sites.

This alternative would result in a short term annual decrease in ranch income of $544,306 on 418 operations. Long term annual decreases would be $481,435 on 335 operations and long term annual increases $90,938 on 176 ranches. Permit value would decrease by $4,866,000 in the short term and $3,264,000 in the long term. Ranch related employment opportunities would decrease by 28 positions in the short term and 23 positions in the long term.

The social well-being of 418 ranch families would decrease in the short term. The social well-being of 176 families would increase and 335 would decrease in the long term.

The attitudes of ranchers toward BLM would be negative due to decreased forage allocations to livestock. The attitudes of recreationists and environmentalists would be positive, due to increased wildlife and reduction in livestock conflicts.

Total earnings would increase by $1,358,000 annually in the short term and decrease by $231,000 annually in the long term. Total employment would increase by 106 people in the short term and decrease by 23 persons in the long term.

Implementation costs of this alternative would be $15,476,551.

## Alternative C: No Grazing

The net effect of the elimination of livestock grazing on public lands would be a 54 percent decrease in sediment yield and a 30 percent decrease in water yield in the long term. Additionally, water quality would improve significantly because of reduced levels of fecal bacteria, suspended sediments and nutrients contained in runoff water. Consumption of water by livestock would decrease from 2,794 acre-feet/year to zero.

Ecological range condition would improve in the long term as succession to ecological climax progressed. Ecological range condition would improve in the long term as succession to ecological climax progresses where there is no infestation by noxious weeds. However, locations where noxious weeds are present, there would be additional acreages infested with noxious weeds and a continual decline of range condition. Noxious weeds and prairie dogs would be controlled only when threatening to private and or crucial wildlife habitat. The condition of riparian, shoreline and saline seep vegetation would improve over the entire EIS area.

Eliminating livestock from public lands would not necessarily improve habitat for many of the wildlife species. Big game forage could be reduced as plant communities trend toward climax vegetation. However, the additional forage and cover available would satisfy the needs of increased wildlife populations in most cases. High value riparian habitat would increase. The release of vegetation that would result from the absence of livestock grazing could be expected to limit or allow only slight increases of prairie dog towns.

For the short and long term, income would decrease on all 608 operations. The decrease in net income would be 24% of the current total.

Ranchers' attitudes and perceptions of BLM would be very negative because of the elimination of grazing on public lands in the EIS area. Attitudes of environmentalists and recreationists would be mixed as removal of livestock grazing would improve the naturalness but the reactions of ranchers to their loss of grazing might result in reduced access to public lands.

Regional economic impacts would be decreases in annual earnings of $501,000 in the short term and $3,009,000 in the long term. Employment opportunities would decrease by 60 in the short term and 303 in the long term.

Total implementation of this alternative would cost $16,944,100, due to construction of 7,400 miles of exclosure fences around public lands and control of noxious weed and prairie dogs.

## Alternative D: No Action

Watershed condition would deteriorate with an increase in sediment and water yields of 15% and 12%, respectively, while the quality of surface water would deteriorate in the long term. Consumptive uses of water by livestock would remain at 2,794 acre-feet/year.

Ecological range condition, riparian areas and floodplains would decline in the long term. Without the control of prairie dogs and noxious weeds, forage supplies would be reduced, resulting in overuse of the range. Vegetation allocations would remain at their present levels of 253,085 AUMs to livestock and 759,255 AUMs to nonconsumptive and wildlife uses.

Wildlife would not be adversely affected, but competition between livestock and wildlife for crucial wildlife habitat would be significant, particularly during the spring and winter seasons. Some viable fisheries reservoirs would be lost due to accelerated sedimentation. The potential expansion of prairie dog towns would reduce the yearlong food and cover of many other wildlife species not associated with prairie dog towns.

Ranchers interviewed anticipated that a no action proposal would have negative impacts on their operations.

There would be no implementation costs for this alternative as maintenance to fences would be the responsibility of the operator and by 1984, maintenance cost of reservoirs, springs, etc., would also be their responsibility.

TABLE 2-2

SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE

| Environmental Component | Existing Situation | Alternative A - Continued Development for Optimum Range Utilization | | Alternative B - Enhanced Watershed Value and Wildlife Habitat | | Alternative C - No Grazing | | Alternative D - No Action | |
|---|---|---|---|---|---|---|---|---|---|
| | | Short Term | Long Term | Short Term | Long Term | Short Term | Long Term | Short Term | Long Term |
| VEGETATION ACRES/CLASS | | | | | | | | | |
| Good & Excellent | 1,004,061 | Increasing = + | 1,118,806 | + | 1,118,806 | + | - | + | - |
| Fair | 93,268 | Decreasing = - | Near 0 | - | Near 0 | - | + | - | + |
| Poor | 2,223 | Decreasing = - | Near 0 | - | Near 0 | - | + | - | + |
| Unclassified | 19,254 | Stand quality would change in the alternatives but without classification the acres unclassified would not change. | | | | | | | |
| Tame Pasture (Change in stand quality) | 59,971 | Static = s | + | s | + | s | - | s | - |
| Production (AUMs) | 1,012,340 | 1,012,340 | 1,080,460 | 1,012,340 | 1,080,460 | 1,012,340 | 1,080,460 | 1,012,340 | 1,012,340 |
| Allocation Livestock | 253,085 | 253,085 | 270,115 | 204,411 | 220,439 | 0 | 0 | 253,085 | 253,085 |
| Nonconsumptive & Wildlife | 759,255 | 759,255 | 810,345 | 807,929 | 860,021 | 1,012,340 | 1,080,460 | 759,255 | 759,255 |
| LIVESTOCK Numbers (800#s/mo) | | | | | | | | | |
| 6 mo. season | 42,181 | 42,181 | 45,019 | 34,069 | 36,740 | 0 | 0 | 42,181 | 42,181 |
| 8 mo. season | 31,636 | 31,636 | 33,764 | 25,551 | 27,555 | 0 | 0 | 31,636 | 31,636 |

TABLE 2-2 (continued)
SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE

| Environmental Component | Existing Situation | Alternative A - Continued Development for Optimum Range Utilization | | Alternative B - Enhanced Watershed Value and Wildlife Habitat | | Alternative C - No Grazing | | Alternative D - No Action | |
|---|---|---|---|---|---|---|---|---|---|
| | | Short Term | Long Term | Short Term | Long Term | Short Term | Long Term | Short Term | Long Term |
| WATERSHED* | | | | | | | | | |
| Sediment Yield | 1,163 | 1,163 | 929 | 1,158 | 831 | 1,157 | 533 | 1,156 | 1,327 |
| Water Yield | 60,194 | 60,194 | 49,097 | 60,194 | 46,576 | 60,070 | 42,249 | 60,156 | 67,272 |
| Water Quality | + | 0 | + | 0 | + | 0 | + | 0 | - |
| Water Consumption | 2,794 | 2,794 | 2,982 | 2,257 | 2,434 | 2,794 | 0 | 2,794 | 2,794 |

* All figures are acre-feet/year

+ Indicates increased quality

- Indicates decreased quality

0 Indicates no change

TABLE 2-2 (continued)
SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE

| Environmental Component | Existing Situation | Alternative A - Continued Development for Optimum Range Utilization | | Alternative B - Enhanced Watershed Value and Wildlife Habitat | | Alternative C - No Grazing | | Alternative D - No Action | |
|---|---|---|---|---|---|---|---|---|---|
| | | Short Term | Long Term | Short Term | Long Term | Short Term | Long Term | Short Term | Long Term |
| WILDLIFE | | | | | | | | | |
| Big Game Pops. a/ | 19,508 | s | s | s | (+) | (+) | (-) | - | - |
| Upl. Game Birds a/ | Unknown | s | (+) | (+) | (+) | + | (-) | s | - |
| Waterfowl a/ Nos | Unknown | s | (+) | (+) | s | + | (-) | - | - |
| Crucial Habitats a/ | 240,000AC | s | (+) | (+) | + | + | (-) | - | - |
| Prairie Dogs a/ | 2,900AC | - | - | (+) | + | s | s | + | + |
| Fisheries b/ | 17 | (+)/0 | +/0 | +/33 | +/33 | +/? | +/? | -/0 | -/0 |

a/ Response to proposed actions by alternative
Stable or neutral response: s
Decline in condition or numbers: (-), slight; - moderate to significant
Improvement or increase: (+) slight; + moderate to significant

b/ Number of Reservoirs

TABLE 2-2 (continued)
SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE

| Environmental Component | Existing Situation | Alternative A - Continued Development for Optimum Range Utilization | | Alternative B - Enhanced Watershed Value and Wildlife Habitat | | Alternative C - No Grazing | | Alternative D - No Action | |
|---|---|---|---|---|---|---|---|---|---|
| | | Short Term | Long Term | Short Term | Long Term | Short Term | Long Term | Short Term | Long Term |
| CULTURAL RESOURCE | | | | | | | | | |
| Potential Sites (est.) | 4,000 to 13,000 | | | | | | | | |
| Potential Sites Disturbed (if no mitigating measures are applied) | | 200 to 1,000 Sites | | 200 to 1,000 Sites | | 0 | 0 | 0 | 0 |

TABLE 2-2 (Continued)
SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE

| Environmental Component | Existing Situation | Alternative A - Continued Development for Optimum Range Utilization | | Alternative B - Enhanced Watershed Value and Wildlife Habitat | | Alternative C - No Grazing | | Alternative D - No Action | |
|---|---|---|---|---|---|---|---|---|---|
| | | Short Term | Long Term | Short Term | Long Term | Short Term | Long Term | Short Term | Long Term |
| SOCIAL<br>ECONOMIC<br>Ranch Impacts | | | | | | | | | |
| Number of ranches | 608 | | | | | | | | |
| Ranch income | 8,892,655 | | | | | | | | |
| Number of ranches with income inc. | | 0 | 350 | 0 | 176 | 0 | 0 | 0 | 0 |
| Total dollar increase | | 0 | $205,638 | 0 | $90,938 | 0 | 0 | 0 | 0 |
| Nuumber of ranches with income decrease | | 0 | 0 | 418 | 335 | 608 | 608 | 0 | 0 |
| Total Dollar Decrease | | 0 | 0 | 544,306 | 481,435 | 3,221,688 | 3,221,688 | 0 | 0 |
| Permit values | 24,614,800 | 0 | +1,703,000 | -4,866,000 | -3,264,000 | -24,614,800 | -24,614,800 | | |
| Ranch employment | 363 | 0 | 0 | -28 | -23 | -303 | -303 | 0 | 0 |
| Total Impact Of Increases | | None | Moderately Significant | Moderately Significant | Moderately Significant | Highly Significant | Highly Significant | None | None |

TABLE 2-2 (continued)
SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE

| Ennvironmental Component | Alternative A - Continued Development for Optimum Range Utilization | | Alternative B - Enhanced Watershed Value and Wildlife Habitat | | Alternative C - No Grazing | | Alternative D - No Action | |
|---|---|---|---|---|---|---|---|---|
| | Short Term | Long Term | Short Term | Long Term | Short Term | Long Term | Short Term | Long Term |
| No. Families With Increase in Social Well Being | 0 | 465 | 0 | 234 | 0 | 0 | 0 | 0 |
| No. Families With Decrease in Social Well Being<br>Unclassified | 0 | 0 | 555 | 445 | 808 | 808 | 0 | 0 |
| Social Impact Assessment | -would meet approval of area ranchers satisfied with present level and kind of mgmt;<br>-provisions for range improvements would also meet their approval;<br>-local increases in wildlife numbers and improvements in riparian habitat would benefit with some reservations groups concerned with wildlife protection and also hunters & recreationalists | -same as short term<br>-in addition some ranchers gain through income increases; could result in enhanced ability to maintain preferred lifestyle | -some ranchers would be required to alter historic mgmt. patterns, forego economic gain, and in extreme cases, may be displaced;<br>-likely cause some rancher resentment at loss of AUMs to wildlife resulting in strained relations with BLM;<br>-increase in local wildlife numbers & protection of riparian areas would result in increased hunting & recreation opportunities on public lands | -same as short term;<br>-in addition, some ranchers would experience opportunities for income gain resulting in enchanced sense of well being | -ranchers would be required to alter historic mgmt. patterns, forego economic gain, and in extreme cases, may be displaced;<br>-wholesale resentment of BLM would likely result and persist into future;<br>-increases in wildlife numbers & improved riparian habitat would benefit wildlife interest groups & hunters, although they do not espouse wholesale removal of cattle from public lands | -same as short term | -continued absence of range improvements would frustrate attempts at long-range mgmt. of operations;<br>-decrease in ranch income is a possibility, resulting in lowered sense of well being + std. of living;<br>-lack of extraordinary measures to protect wildlife habitat, especially riparian areas could meet opposition from wildlife interest groups. | -same as short term;<br>-eventual decline in wildlife numbers would decrease hunting & viewing opportunities on public lands |

TABLE 2-2 (continued)

SUMMARY OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE

| Environmental Component | Existing Situation | Alternative A - Continued Development for Optimum Range Utilization | | Alternative B - Enhanced Watershed Value and Wildlife Habitat | | Alternative C - No Grazing | | Alternative D - No Action | |
|---|---|---|---|---|---|---|---|---|---|
| | | Short Term | Long Term | Short Term | Long Term | Short Term | Long Term | Short Term | Long Term |
| REGIONAL IMPACTS | | | | | | | | | |
| Area Earnings | $174,888,000 | + 1,635,000 | 0 | + 1,358,000 | $-231,000 | -501,000 | -3,009,000 | 0 | 0 |
| Area Employment | 17,631 | + 134 | 0 | + 106 | - 23 | - 60 | - 303 | 0 | 0 |
| Total Impact to Area Economy | | Insignificant | None | Insignificant | Insignificant | Insignificant | Moderately Significant | None | None |
| Implementation Cost | | 11,958,051 | | 11,955,251 | | 20,769,100* | | 0 | |

*Includes $16,944,100 private investment

# CHAPTER 3

# THE AFFECTED ENVIRONMENT

## CLIMATE

The dry continental climate of the Big Dry EIS area is characterized by short summers with mild to warm temperatures and long cold winters. Mean air temperatures average 72 degrees Fahrenheit (°F) in July and 15°F in January. Temperatures fluctuate greatly during all seasons of the year, limiting the growing season to between 110-130 days.

Precipitation levels fluctuate, averaging 12 to 14 inches. The Big Dry EIS area receives the greatest concentration (80%) of precipitation between April and September as rain. The annual average snowfall in the area is approximately 30 inches.

## GEOLOGY

Geologic formations exposed at the surface of the EIS area consist of sedimentary strata that range from mid-Cretaceous to early Tertiary age. The older Cretaceous rocks are limited to exposures along the Missouri River and along structural trends associated with the Central Montana Uplift and the Cedar Creek Anticline. The Tertiary formations are the most widespread and resulted from the accumulation of nonmarine sediment in the large Williston Basin.

## WATERSHED

### Soils

The soils of the EIS area are derived mainly from soft sedimentary bedrock, local and regional alluvium from mixed sources, shale, siltstones, claystones, and to a minor amount, glacial till. Because of this the area has complex and diverse soil patterns, varying greatly in character and productivity.

For descriptive purposes in this EIS, approximately 150 soil series were grouped into 15 geomorphic soil subgroups (Map 3, Map Supplement). Each of these soil subgroups has unique capabilities and limitations for land uses and treatments based upon topography and soil properties. Selected vegetation characteristics of the geomorphic soil subgroups are also given in Appendix 3.1.

About 63 percent (742,600 acres) of public lands in the EIS area have moderate to high potential for water erosion. Allotments in areas dominated by soil subgroups 1, 11, 13, 14 and 15 have a moderate to high water erosion hazard because of infiltration, permeability, texture, structure and slope. Allotments in areas dominated by subgroups 3, 4, 5, 6, 10 and 12 have slight to moderate water erosion hazards.

Based on step-point transects, vegetation cover on all 15 soil subgroups on public lands range from 9-100 percent under current vegetation allocations which are sometimes less than the minimum necessary for maintaining soil stability and productivity. Desired soil vegetation cover percentages (called "Target Soil Vegetation Cover") have been developed for each range site. (Appendices 3.2 and 3.3) Target soil vegetation covers are needed to establish acceptable vegetation cover on each range site. This would help to ensure adequate soil protection and help prevent sediment loss into nearby watershed and streams. These target covers would be updated periodically and used in activity planning and development of allotment management plans.

Soils in subgroups 1, 14 and 15, comprising 163,800 acres of public lands, are unsuited for season long grazing because of the severe erosion potential of soils on shale uplands and along stream channels. These soils are most suited to rest rotation grazing systems due to the fragile nature of the soils, susceptibility to trampling and soil compaction during seasonally wet periods and the clayey textures in shale areas. Soils in these subgroups are also well suited to deferred and deferred rotation grazing systems. Because of the topography, slope, soil texture and water erosion potential, mechanical treatments are not recommended.

Soils in subgroups 2, 4, 5, 7, 9, 12, and 13 on a total of 878,300 acres of public lands, are suited to all of the grazing systems listed in the vegetation section of Alternative A. Mechanical treatments (Appendix 2.8A) could increase production up to four times on selected soils by changing vegetation composition, improving infiltration, reducing runoff and catching more snow.

The 136,000 acres of public land in soil subgroups 3, 8, 10, and 11 are well suited to deferred, deferred rotation and rest rotation grazing systems. Grazing systems with late spring season of use would stabilize watershed conditions and maintain water quality in these areas.

Riparian soils (located in subgroup 1, which totals 75,000 acres of public lands) are occasionally saturated with water in the spring and transmit all inflow water except that lost to evapotranspiration The slow release of water from riparian zones prolongs streamflow periods for offsite or downstream users. Riparian zones are also sources for recharge of subterranean aquifers.

Riparian zones are highly productive forage sites and livestock use these areas intensively. Riparian vegetation provides rubbing and shade sources for cattle, in addition to forage. Erosion, with attendant stream channelization and sedimentation, has developed as a result of livestock concentrations in these zones. Riparian soils are best suited to rest rotation grazing and deferred rotation grazing systems.

Selected series within the 15 geomorphic soil subgroups may be mechanically treated to increase vegetation production, establish soil cover or decrease soil erosion.

Pitting, chiselling and ripping may be used on selected soil series within geomorphic soil subgroups 2, 3, 4, 7, 8, 11 and 13. Scalping and contour furrowing may be done on selected series in subgroups 2, 4, 7, 9, 11 and 13. Slopes in excess of 12% are considered unsuited to these treatments due to increased erosion problems. Selected soils within 1, 2, 4, 5, 7, 9, 11, 12 and 13 may lend themselves to interseeding where an inadequate seed source of desirable species or a vegetation conversion is desirable. Plowing and seeding on selected soils in subgroups 1, 2, 4, 5, 7, 9, 11, 12 and 13 may be applied after less destructive and costly measures have been found inadequate. Chaining (cabling, railing), dozing and rotobeating on selected soils within subgroups 1,

4, 5, 7, 9, 11, 12 and 13 may be performed if slopes are less than 8%. Fire may be used on all subgroups, but are most favorable on subgroups 1, 2, 4, 5, 7, 10, 11, 12 and 13. Least favorable soils are in subgroups 6, 14 and 15, because vegetation is so sparse that any removal may result in increased erosion beyond acceptable levels.

Saline seeps are wet, saline soils in drainages below reservoirs and on some other slopes and drainages. Water impoundment structures often produce areas of seepage below them. Water percolates through reservoirs, dams and abutments, dissolving salts from local soils. These salts accumulate at the soil surface by the upward capillary movement of water and its subsequent evaporation. Some saline water from the seeps moves down drainages, causing changes in vegetation composition and reducing soil productivity, particularly on riparian soils.

## Groundwater

The availability of groundwater in the Big Dry EIS area is directly related to the geology of the area. The Big Dry area is somewhat like a bowl filled with about 10,000 feet of layered material with some layers transmitting enough water to supply wells (Figure 3-1).

The chemical quality of the groundwater in the EIS area shows considerable variation. Water in the shallow aquifers is chemically dynamic, being subject to dilution by recharge, concentration by evaporation and transpiration, and chemical reactions by bacterial activity, oxidation, and other factors. Water in deeper aquifers is chemically static, with chemical changes limited to interactions between the water and rocks (USGS & MBMG 1978).

The Fort Union formation (Figure 3-1 and Appendix 3.4) covers approximately 80% of the EIS area and is the most widely used aquifer. Wells drilled 100 to 400 feet into this formation generally produce adequate water for stock and domestic needs. Two to 12 gallons per minute (gpm) are typical yields. High sodium content of Fort Union water usually precludes its use for irrigation.

The Fox Hills-Lower Hell Creek formations form a continuous aquifer system which is capable of producing water almost anywhere in the EIS area. The depth to this aquifer is 600 to 1,000 feet.

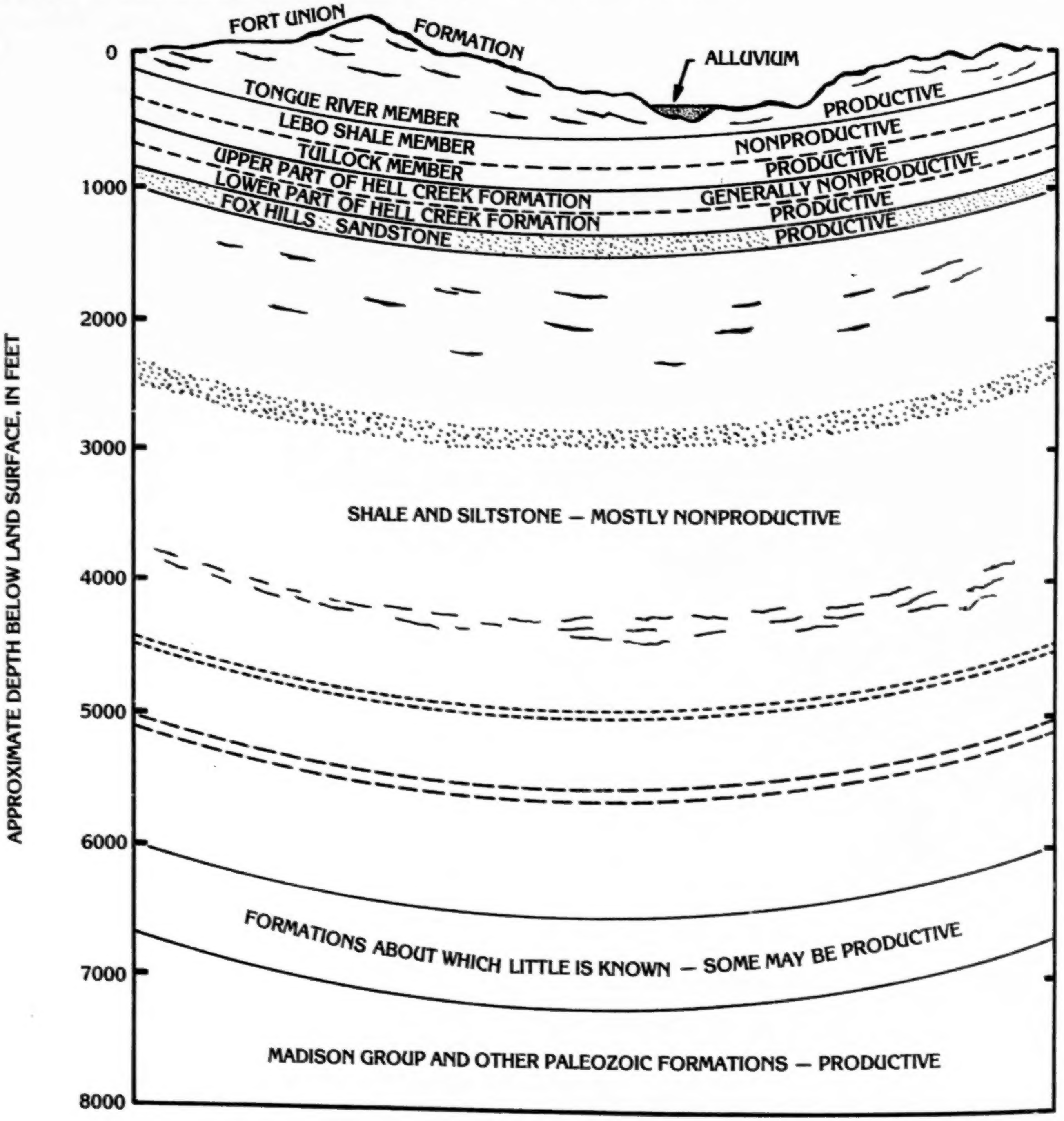
Alluvium and terrace deposits occur locally along the Yellowstone and Missouri Rivers and along other perennial streams and their tributaries in the EIS area. These deposits lie above the Fort Union Formation. Irrigation wells yielding up to 1,000 gal./min. have been developed from the alluvium in the major river valleys. However, due to their limited area extent, alluvium deposits are minor producers of groundwater when compared to other formations in the area.

On public land, there are approximately 250 wells and 100 springs. All supply water for wildlife and livestock consumption.

## Surface Water

The Missouri and Yellowstone Rivers are the major drainages in the EIS area. The Missouri River, which flows in an easterly direction, drains most of the northern portion of the area. The Yellow-

FIGURE 3-1 WATER BEARING FORMATIONS OF THE BIG DRY EIS AREA


FORT UNION FORMATION
ALLUVIUM
TONGUE RIVER MEMBER
PRODUCTIVE
LEBO SHALE MEMBER
NONPRODUCTIVE
TULLOCK MEMBER
PRODUCTIVE
UPPER PART OF HELL CREEK FORMATION
GENERALLY NONPRODUCTIVE
LOWER PART OF HELL CREEK FORMATION
PRODUCTIVE
FOX HILLS SANDSTONE
PRODUCTIVE
SHALE AND SILTSTONE — MOSTLY NONPRODUCTIVE
FORMATIONS ABOUT WHICH LITTLE IS KNOWN — SOME MAY BE PRODUCTIVE
MADISON GROUP AND OTHER PALEOZOIC FORMATIONS — PRODUCTIVE
APPROXIMATE DEPTH BELOW LAND SURFACE, IN FEET
0
1000
2000
3000
4000
5000
6000
7000
8000

The Big Dry EIS Area is underlain by several units that are productive aquifers

Source: USGS and MBMG, 1978

stone River flows northeasterly and drains most of the southern portion. Smaller drainages include the Musselshell River, which flows northerly to the Missouri River and drains the extreme western portion of the area, the Powder River, which flows northerly to the Yellowstone, and Beaver Creek, which is a tributary to the Little Missouri River. Both the Powder River and Beaver Creek drain the southeastern portion of the area. Twenty-nine miles of perennial streams and 150 miles of major intermittent streams occur on public lands. In addition, approximately 850 reservoirs also occur on public lands. Average annual runoff for the EIS area is approximately 0.5 inch (*USGS Water Resources Data for Montana*).

Most major intermittent streams exhibit a sodium sulfate-type water Appendix 3.5). Total dissolved solids (TDS) in these streams are generally high enough to preclude human consumption (McKinley 1979; Montana Testing Labs 1981). The water in these streams is suitable for irrigation only during moderate to high flows from snowmelt and spring rains. The water is usually of high enough quality for livestock watering whenever there is flow. Standing water in these intermittent streams is generally too high in TDS for any use.

Surface water quality varies among the perennial streams in the EIS area. Waters in the Yellowstone and Missouri Rivers are good for domestic, stock, and irrigation purposes. The Musselshell River is marginal for domestic and irrigation uses, but good for stockwater. The Powder River is high in total dissolved solids and suspended sediment. Its water is fair to good for livestock, but unsatisfactory for domestic use.

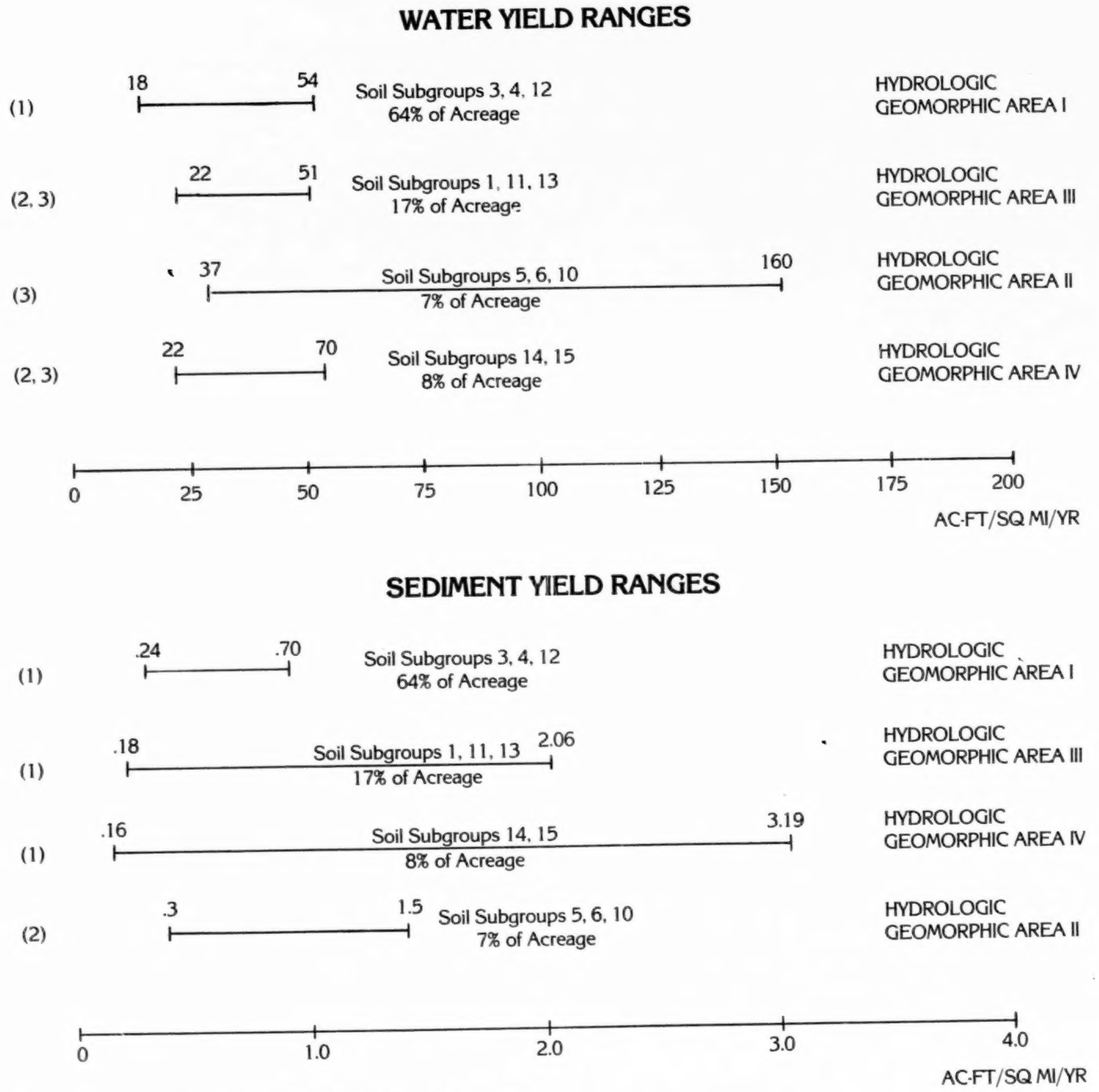
Reservoir sediment studies were conducted on fourteen reservoirs in the summers of 1980 and 1981. The reservoirs were placed into one of four hydrologic geomorphic areas based on the soils of the respective watershed. Results (Appendix 3.6) indicate hydrologic geomorphic areas I and III tend to be lower producers of runoff and sediment than areas II and IV. Ranges for runoff and sediment production appear in Figure 3-2. These ranges were later used to determine water and sediment yields for each of the four proposed alternatives.

## VEGETATION

The vegetation community on public lands is composed of the following major types: grassland 45%, badland 23%, sagebrush-grassland 21%, tame pasture (primarily crested wheatgrass) 5%, conifers 3%, halophytic shrub 2%, broadleaf trees with open canopy 1%, and broadleaf trees with closed canopy and mesic shrubs less than 1% each. Figures 3-3 and 3-4 are typical of the area. Rangelands which are predominately a needlegrass-wheatgrass-grama association. Areas which have more than 10 percent canopy cover of trees are grazable woodlands. The general vegetation communities of the 15 soil subgroups are noted in Appendices 3.1 and 3.2, along with possible management practices. Plant communities are described in detail by range site in the USDA-SCS MT Technical Guide, 1979.

Riparian zones are defined as a specialized form of wet meadow producing specific vegetation types (Figure 3-5). Riparian zones are wet or subirrigated with vegetation common to wet meadow,

FIGURE 3-2
AGGREGATIONS OF SOIL SUBGROUPS BY EROSION/SEDIMENT AND WATER YIELD POTENTIAL
(REPRESENTS 96% OF THE PUBLIC LAND ACREAGE)



Sources: BLM 1981A, BLM 1981B, USGS Annual Reports.

subirrigated or saline lowland range sites. The relative vegetation composition (by weight) of grasses, forbs, and trees and shrubs on each rangesite (wet meadow, subirrigated or saline lowland) is shown in Table 3-1.

TABLE 3-1
PERCENT RANGE SITE VEGETATION COMPOSITION

| Range Site | Grasses | Forbs | Trees & Shrubs | Total |
|---|---|---|---|---|
| Wet Meadow | 65 | 10 | 25 | 100 |
| Subirrigated | 75 | 10 | 15 | 100 |
| Saline Lowland | 75 | 5 | 20 | 100 |

These zones are used disproportionally more than any other vegetation type for livestock grazing, watering, shade, travel, wildlife habitat, and for concentrated waterflow.

Floodplains and overflow range sites are often adjacent to riparian zones. Vegetation typical of upland sites receives additional moisture from overland flow. Woody vegetation may include silver sagebrush, snowberry, rose, buffaloberry, boxelder, elm, chokecherry, and cottonwood.

## Range Condition, Production and Trend

Ecological range condition expressed as excellent, good, fair, poor or unclassified, reflects the current vegetation composition of the rangeland in relation to the potential climax plant community. The ecological range condition of the public lands is 85% good and excellent, 8% fair, 2% poor, 1.6% unclassified and 5.1% tame pasture as mapped by BLM specialists in 1979 and 1980. See Table 3-2. Of the 155,462 acres in less than good condition, 61 percent (95,491 acres) is native range and 39 percent (59,971 acres) is tame pasture. Most of the tame pasture is suitable for land treatment and 67,958 acres of the native range is suitable for land treatment.

The opportunity for improving range conditions and production with grazing management is greatest on clayey and/or loamy sedimentary uplands, alluvial terraces and floodplains. Grazing systems that are designed to provide for the needs of the vegetation would generally improve range condition in a relatively short time.

Range sites vary widely in production because of differences in soils. Silty and clayey are the dominant range sites and are among the more productive and responsive sites.

Vegetation production on rangelands varies widely with fluctuations in precipitation. Timing of precipitation is critical. Production is lower than normal when precipitation is low or when precipitation occurs during plant dormancy periods. Critical rainfall periods are in the fall before freeze-up and in the spring during early plant growth of the dominant cool season grasses.

Actual use, utilization and trend data has been collected on the 30 existing AMP allotments. Methods of determining trend include photo-trend plots, point transects, comparison of recur-

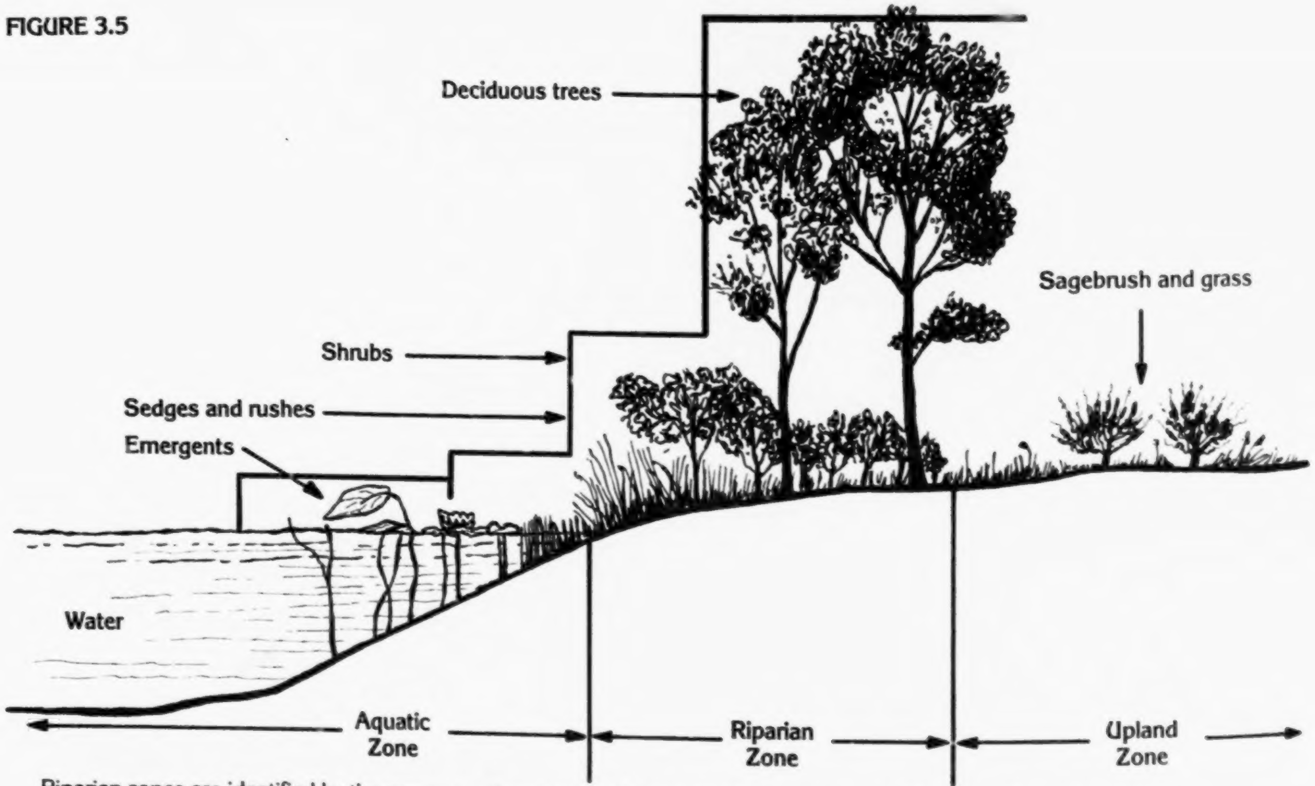
FIGURE 3-3

**Typical area rangeland with deciduous trees occurring in waterways and north slope drainages**

FIGURE 3-4

**Typically rolling topography with predominantly a grass/shrub vegetation community**

FIGURE 3.5



Riparian zones are identified by the presence of vegetation that requires large amounts of free or unbound water.

From: Thomas, J.W.; Maser, C.; and Rodier, J.E. 1979. Riparian zones in managed rangelands — their importance to wildlife. *In* Forum — Grazing and Riparian/Stream Ecosystems. Ed. Oliver B. Cope, Trout Unlimited.

rent surveys and professional judgment. Trend information on these allotments is found in Appendix 3.7.

Generally, trend is in a stable or slightly upward direction as indicated by comparison of several range surveys which cover the same area and is evidenced by the preponderance of good or better condition range lands. Those areas in less than good condition are generally the result of several factors such as prairie dogs, livestock concentration areas, or noxious weeds. Such areas generally are not the result of an overallocation of vegetation, but local overuse.

Leafy spurge is a perennial noxious weed which has created a serious problem by infesting Montana ranges, including public lands. It is generally found in small isolated patches; it spreads rapidly and is extremely difficult to eradicate. Several areas (80 acres) were treated with Tordon beads in 1981 with some apparent success. Repeated treatments would be necessary.

Other noxious weeds in significant amounts are: field bindweed, Canada thistle, cocklebur and knapweeds. An occasional isolated patch of halogeton is found.

Invasion of ranges in excellent condition and displacement of useful forage is common with noxious weeds. They are not limited to disturbed or low condition areas, though these areas favor weed infestation

Vegetation production and range condition are greatly reduced on prairie dog towns. Range condition on prairie dog towns is usually poor, because of the continual clipping of vegetation and the conversion of the plant community to invader and low successional plants.

No rare or endangered plant species are known to exist on public lands in the EIS area. One threatened species, yellowcress (*Roripa calycina*), does occur in the area.

## TABLE 3-2
## PUBLIC LAND RANGE CONDITION SUMMARY BY MANAGEMENT STATUS
(Acres and Percent)

| | GOOD AND EXCELLENT | FAIR | POOR | UNCLASSIFIED | TAME PASTURE | TOTAL |
|---|---|---|---|---|---|---|
| Existing AMPs | 202,024<br>88.7/17.1/20.1 | 10,433<br>4.6/.9/11.2 | 610<br>.3/.1/27.5 | 1,914<br>.8/.2/9.9 | 12,795<br>5.6/1.1/21.3 | 227,776<br>100/19.4/-- |
| Proposed AMPs | 249,388<br>84.6/21.2/24.8 | 35,005<br>11.9/2.9/37.5 | 1,052<br>.4/.1/47.3 | 771<br>.3/.1/4.0 | 8,582<br>2.9/.7/14.3 | 294,798<br>100/25/-- |
| Season & Number & Custodial | 548,780<br>84.2/46.5/54.7 | 47,277<br>7.3/4.0/50.7 | 561<br>.1/.1/25.2 | 16,569<br>2.5/1.4/86.1 | 38,594<br>5.9/3.3/64.4 | 651,781<br>100/55.3/-- |
| Unallocated | 3,869<br>87.5/.4/.4 | 553<br>12.5/.1/.6 | | | | 4,422<br>100/.5/-- |
| TOTAL | 1,004,061<br>85.2/--/100 | 93,268<br>7.9/--/100 | 2,223<br>.2/--/100 | 19,254<br>1.6/--/100 | 59,971<br>5.1/--/100 | 1,178,777 |

1 2 3
XXX/XXX/XXX

1. Percent of each management class in each condition class, i.e., 202,024 divided by 227,776 x 100 = 88.7%.
2. Percent of land in each management and condition class, i.e., 202,024 divided by 1,178,777 x 100 = 17.1%.
3. Percent of condition class by management status, i.e., 202,024 divided by 1,004,341 x 100 = 20.1%.

## LIVESTOCK

About 708 operators are licensed to graze a total of 253,075 AUMs in the 777 allotments in the EIS area.

Grazing usually begins in April and extends through November on some allotments. For most operations, the total grazing period on public and private lands is April-November, a total of 7 to 8 months. Livestock are generally fed hay and supplements on winter pastures, though grazing is not uncommon during open winter. The overall average dependency upon public lands is about 20 percent, although many operations depend heavily on the public lands, especially during spring and summer.

Cattle ranching is the main livestock enterprise on public lands, encompassing 777 allotments and 243,714 AUMs. Seven thousand sheep graze on 31 of the 777 allotments and use 9,361 AUMs, which is about four percent of the total licensed use on the public lands. Most ranches are one-family or family corporation cow/calf operations.

The availability and quality of water are limiting factors on some allotments.

Thirty AMPs were developed cooperatively between ranchers and BLM prior to June 1975. These AMPs include 19 percent of the public lands in the area. Of the thirty AMPs, three use rest rotation grazing systems, 26 use deferred rotation. One approved AMP has not been implemented. Of the remaining allotments, 63 have been recommended for AMP feasibility studies. The remaining 684 allotments would be evaluated to determine if management changes are necessary.

Range surveys and adjudications in the late 1950s and early 1960s established the current livestock use allocations. Allocations were also made to provide for wildlife populations. (See Table 2-2.)

## WILDLIFE

Wildlife habitats in the Big Dry Resource Area include diverse combinations of vegetation, water and topography. A diversity of species and numbers of individuals occupy the area. Riparian zones and woody draws (Figure 3-6) and sagebrush-grasslands are crucial habitats. Riparian areas and wooded drainages are estimated at less than five percent of the public acreage in the EIS area. Wildlife use of riparian and woody draw habitats is disproportionate to their occurrence. Therefore, maintenance and enhancement of those habitats is important because of the relationship between these habitats and their use.

Shrub-grassland and shrub-steppe habitats are important to many wildlife species and absolutely necessary to some. Sagebrush is a key forage and cover for various wildlife, particularly deer, antelope and sage grouse (Bayless 1969, Martin 1970, Schlatterer & Pyrah 1970). Sagebrush vegetation types occupy 21 percent of the EIS area.

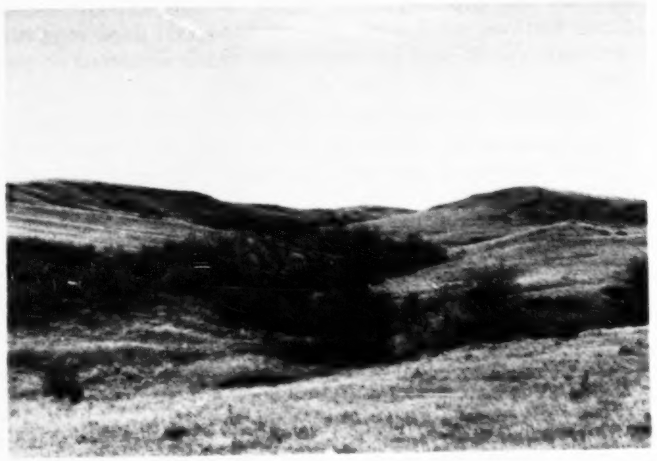


**FIGURE 3-6**
**Woody draw habitat**

Crucial big game winter ranges may require special vegetation allocations. Although winter ranges requiring special considerations have not been identified, monitoring would allow management decisions on a case-by-case basis.

Wildlife species known or expected to occur in the Big Dry Resource Area include 58 mammal, 238 bird, 10 reptile, 6 amphibian, and 59 fish. (See URA 2 for Jordan, North Rosebud, Kinsey, Prairie, Baker, Wibaux, Circle, and Richland-Glendive Planning Units.)

The following sections are general discussions of existing wildlife and their habitats. Extrapolations of animal densities to public lands as target management levels and as a basis for vegetation allocations, for the most part, are considered unrealistic and generally not supported by state wildlife personnel. In coordination with the Montana Fish, Wildlife and Parks Department, we recognized that available information prevented quantifications of wildlife for allotment level vegetation allocations. The present situation (75% allocation to nonconsumptive and wildlife uses and 25% to livestock use) affords the best allocation and the best opportunities for monitoring and adjusting allocations to meet special conditions.

## BIG GAME

### Mule Deer

Mule deer are the most common big game animal of the Big Dry Resource Area. They are distributed throughout the area and utilize, to some degree, most of the public land.

Habitats crucial to mule deer in southeastern Montana are riparian drainages and woody draws, upland shrub complexes (particularly sagebrush), and the various breaks types. Combinations of vegetation and topographic features provide habitat diversity and edge which are highly valuable to most wildlife. Cover and forage needs are generally provided if these vegetative and topographic features are not too widely separated or overused.

Deciduous browse is used significantly during the fall and winter seasons (e.g. rabbitbrush, skunkbrush, chokecherry). Plant species commonly used by mule deer in eastern Montana are listed in Table 3-3.

Mule deer numbers have increased significantly since the spring of 1979. Montana Fish, Wildlife and Parks (FW&P) used a computer model to obtain high and low densities of deer for hunting units within the EIS area. These are not to be considered absolute population estimates, but only represent density estimates for a specific period of time. (See Appendix 3.8 for density estimates of deer and the assumptions and rationale for these estimates.) Densities of mule deer by hunting unit ranged from 1.0 to 12.6 (high estimates) animals per square mile.

Wintering areas in 1977-78 and 1978-79 with five or more deer per square mile are shown on Map 2 (Map Supplement).

TABLE 3-3
PLANTS MOST UTILIZED BY DEER IN MONTANA[1]

**Browse[2]**

Big Sagebrush
Common juniper
Rabbitbrush
Rose
Snowberry
Chokecherry
Silver Buffaloberry
Skunkbush sumac
Willow
Cottonwood
Silver sagebrush
Red-aster dogwood
Serviceberry
Plains poplar
Winter fat
Nuttall saltbush
Creeping juniper

**Grass**

Prairie junegrass
Sandberg bluegrass
Western wheatgrass
Wheat
Barley

**Forbs**

Alfalfa
American vetch
Common bastard toadflax
Common dandelion
Hood's phlox
Lomatium
Prairie onion
Summer cypress
Prairiesmoke
Pussytoes
Sagebrush buttercup
Scarlet gaura
Yellow fritillary
Yellow salsify
Yellow sweetclover
Prickly lettuce
Small soapweed
American licorice
Fringed sagewort
Wild buckwheat
Clover
Fireweed

[1]From Prairie Potholes EIS

[2]Browse, forbs and grasses which are important in Montana deer studies and known to occur in the EIS area

### White-tailed Deer

Whitetailed deer densities by hunting unit ranged from 0.1 to 15.6 (high estimates) animals per square mile (Appendix 3.8). Woodlands are preferred habitats of whitetails; and in the Big Dry Resource Area, riparian and woody draw habitats are crucial elements of their range. Plant species found in whitetail diets are listed in Table 3-3.

Winter concentrations with observed densities of five or more deer per square mile are shown on Map 2 (Map Supplement).

### Antelope

Pronghorn antelope are the second most numerous big game animals. Densities (minimum counts) by hunting unit ranged from 0.6 to 4.4 animals per square mile on antelope range within the hunting units (Appendix 3.9). Herd composition information indicates good fawn production and survival rates for the area, probably because of suitable habitat conditions on native rangelands (Montana Department of Fish, Wildlife and Parks 1974-79).

Antelope are characteristically plains animals and occupy open, rolling grasslands and shrub-grasslands. Antelope use grassland, grassland-shrub, shrub and agricultural vegetation types in the spring, summer and early fall while they concentrate on grassland-shrub and shrub types during the winter.

Browse is vital in the antelope diet; sagebrush constitutes a very large part of their yearlong forage (Table 3-4). Winter diet usually consists of at least 80 percent sagebrush. In the spring, succulent green grasses are used for 1 to 2 weeks before forbs are available. Also important in the spring, summer and early fall are seasonal forbs. Plants more commonly used by antelope in central Montana are listed by season of use in Table 3-5. Similar patterns of food usage are assumed in eastern Montana.

General antelope winter ranges have been delineated by the Montana Fish, Wildlife and Parks Department (Map 4, Map Supplement). Crucial wintering areas have not been delineated for the entire EIS area. Crucial winter habitat includes sagebrush and shrubs between 12 to 24 inches in height, especially when snow covers the shorter sagebrush plants. Vegetation cover is also necessary for fawning as it protects the young from predators and severe winters (Autenrieth 1978).

TABLE 3-4
PLANTS MOST UTILIZED BY PRONGHORN
ANTELOPE IN MONTANA[1]

**Browse[2]**

Big sagebrush
Silver sagebrush
Greasewood
Winterfat
Rabbitbrush
Rose
Skunkbrush sumac
Western snowberry
Nuttall saltbush

**Grass**

Bluegrass
Wheat
Barley
Blue grama
Brome grass
Wheatgrass
Common dandelion
Prairie clover

**Forbs**

Common bastard toadflax
Western yarrow
Hairy seed lomatium
Hood's phlox
Knotweed
Cudweed sagewort
Fringed sagewort
Scarlet glovemallow
Silver scurfpea
Small soapweed
Yellow sweetclover
Thistle (all species)
Onion
Sagebrush buttercup
Wavyleaf agoseris
Yellow salsify
Alfalfa
Aster
Field bindweed
Prickly lettuce

[1]From Prairie Potholes EIS

[2]Browse, forbs, and grasses which are important in Montana antelope studies and known to occur in the EIS area

TABLE 3-5
FOOD HABITS OF PRONGHORN ANTELOPE FOR EACH SEASON OF THE YEAR IN CENTRAL MONTANA[1]

| | Seasonal Preference | | |
|---|---|---|---|
| Season | First | Second | Third |
| Spring | Browse (71%) | Forbs (21%) | Grass (8%) |
| Summer | Forbs (66%) | Browse (33%) | Grass (1%) |
| Fall | Browse (50%) | Forbs (48%) | Grass (2%) |
| Winter | Browse (96%) | Grass (1.5%) | Forbs (0.5%) |

[1] From Prairie Potholes EIS

### Bighorn Sheep

Bighorns (the Audubon variety) in early history were an inhabitant of the Northern Great Plains area. Badlands and rugged river breaks were topographically suited to their cover needs. They have been reintroduced to the breaks along the Powder River; other reintroductions may be feasible particularly in the Terry Badlands.

## UPLAND GAME BIRDS

### Sharp-tailed Grouse

Sharp-tailed grouse are the most common upland game birds. Because of their general distribution, they are considered as occurring over the total 1,178,777 acres of public lands. They are widely distributed through the grassland, grassland-shrub and open woodland habitats. Woody draws associated with these types are particularly important yearlong because of their food and cover values.

Yearlong residual cover is very important for the sharp-tailed grouse. Adequate nesting cover is 4 to 6 inches of grass, which also provides security during the brood-rearing seasons. Brood rearing takes place in the same area as nesting. Woody draws in the woodlands, grassland and grassland-shrub habitats are crucial brood-rearing areas.

Important plant species used by sharp-tailed grouse are alfalfa, clover, common chokecherry, common dandelion, pussytoes, rose, serviceberry and silver buffaloberry (Marshall et al. 1937, Martin et al. 1951, and Neilsen 1978).

Buffaloberry, snowberry, juniper and wild rose in the woodlands are used extensively for food and cover by grouse during the winter. If snow is not available for burrowing during severe winter weather, shrubby vegetation must be available to protect the grouse population from heavy winter kills. Studies show that grouse may move some distance to find these shrubs (Neilsen 1978). Maintenance of woody draws and riparian habitats is the key to winter survival of sharp-tailed grouse.

### Sage Grouse

Sage grouse are the next most important game birds, having about 247,500 acres of habitat on public lands. They are primarily associated with the big and silver sagebrush communities in grassland-shrub and shrub vegetation types. Populations seem to be decreasing because of the continual reduction in habitat, principally due to expanding cultivation (Martin, personal communication). Distribution of sage grouse in the area is illustrated on URA map overlays in the Big Dry Resource Area Office.

Nesting habitat is located under sagebrush, usually within 2 miles of mating grounds (Wallestad and Pyrah 1974, Martin 1970, and Gill 1965).

Sage grouse wintering/nesting complexes should be managed to sustain a sagebrush component of 15 to 30% canopy coverage and an average plant height of 18 inches.

### Ring-Necked Pheasant

Pheasants are commonly associated with riparian/agriculture vegetative associations. A small amount of public land is found on the riparian zones (less than 5%). Those acres of public riparian habitat are important areas of cover.

### Turkeys

Turkeys occur most commonly in riparian habitats of major drainages in the EIS area and in the Ponderosa pine habitats of the Knowlton/Locate area.

## WATERFOWL

The Canada goose and 19 species of ducks are found in the EIS area (URA 2 for planning units). In addition to the Canada goose, common nesting species are the mallard, pintail, blue-winged teal, green-winged teal, and American wigeon.

The northern portion of the Big Dry area is part of the larger continental potholes region (300,000 square miles), the most important waterfowl producing area in North America (Smith et al. 1964). In wet years, this total area has the potential of producing over half of the annual duck population in North America, while containing only 10 percent of the duck breeding area. Water is the limiting factor in duck production.

The Yellowstone and Missouri Rivers are prime waterfowl areas. Canada goose production on the Yellowstone River and in the general Sunday Creek area is significant and increasing. Stock-watering reservoirs in the Big Dry Resource Area also contribute to waterfowl production and migration.

Livestock tend to periodically concentrate around water sources, resulting in depletion of vegetative cover.

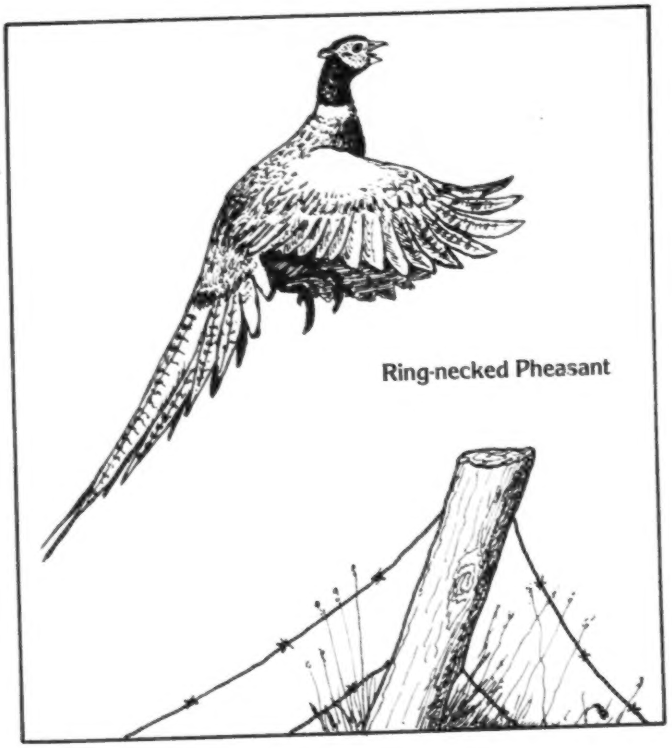
## NONGAME ANIMALS

Mink, beaver and muskrat are the principal fur bearers harvested in the area. All three are associated with water habitat. Predators that might be observed on public lands are the coyote, fox, weasel, badger, skunk, bobcat and raccoon.

Numerous nongame birds occupy various habitats on public lands. Some are specific to a particular habitat type, with the highest densities occurring in riparian ecosystems (BLM, Nongame Studies, 1980). Almost all are seasonal and leave the area during winter.

There are approximately 2900 acres of known black-tailed prairie dog towns in the EIS area. Prairie dog towns provide habitat that may be used by more than 30 animal species. The burrowing owl and mountain plover, species of special concern to the Montana Department of Fish, Wildlife and Parks (1979) may be found in these towns. Potential habitat for the endangered black-footed ferret also exists in these towns.

Prairie dogs compete with livestock for forage. In the past, prairie dog towns covered thousands of acres in the area and were reduced or eliminated by local ranchers through control programs. Prairie dog expansion on public lands may seriously reduce the forage available to livestock. In response to this concern, BLM in Montana has formulated a prairie dog policy statement (Appendix 2.6) to guide prairie dog management on public lands.



Ring-necked Pheasant

## FISHERIES

Sport fisheries occur in the Yellowstone, Missouri and Redwater Rivers. Tributary streams in the area that support sport fisheries are Fox Creek, Big Dry Creek, Little Dry Creek and Beaver Creek.

Nongame fisheries are supported in the above waters as well as in persistent pools of ephemeral streams. Public lands provide some access to sport fishing streams in the area. Fish species are listed in the URA 2 for planning units within the EIS area.

Reservoirs on public lands may also provide fishing opportunities. Public reservoirs that are periodically stocked with fish are listed in Table 3-6.

TABLE 3-6
RESERVOIRS PERIODICALLY STOCKED AND WITH PUBLIC ACCESS ON BLM ADMINISTERED LANDS

| Reservoir | LOCATION<br>Legal Descrip. | Planning Unit | Fisheries[1] |
|---|---|---|---|
| Gunderson | T8N, R59E, Sec. 24 | Baker | LMB |
| Crawford | T8N, R61E, Sec. 22 | Baker | LMB |
| Clark | T13N, R48E, Sec. 18 | Prairie | RT, YP |
| South Fork | T13N, R48E, Sec. 17 | Prairie | LMB, BG |
| Grants | T13N, R48E, Sec. 21 | Prairie | BL |
| Silvertip | T13N, R48E, Sec. 24 | Prairie | LMB |
| Homestead | T14N, R49E, Sec. 7 | Prairie | LMB, SMB |
| Coal Creek | T13N, R5IE, Sec. 35 | Prairie | LMB, GS |
| Ole Olson | T10N, R52E, Sec. 5 | Prairie | LMB |
| Bill Almy | T10N, R54E, Sec. 28 | Prairie | LMB |
| Ayers #3 | T10N, R55E, Sec. 10 | Prairie | RT |
| Harms | T13N, R48E, Sec. 31 | Prairie | RT |
| Cottontail | T13N, R48E, Sec. 33 | Prairie | LMB |
| Big Drop | T13N, R56E, Sec. 9 | Wibaux | RT |
| Camp | T13N, R56E, Sec. 9 | Wibaux | RT |
| Prairie Goat | T13N, R56E, Sec. 9 | Wibaux | LMB |
| Upper Labell | T13N, R56E, Sec. 14 | Wibaux | Potential |

[1] LMB — Large-mouthed Bass
RT — Rainbow Trout
YP — Yellow Perch
GS — Green Sunfish
BG — Bluegill
BL — Bullhead
SMB — Small-mouthed Bass

## ENDANGERED AND THREATENED SPECIES

The bald eagle is the only endangered species known to occur in the area.

Potential for black-footed ferret occurrence exists with prairie dog towns. A confirmed sighting of a black-footed ferret was made on a prairie dog town south of the EIS area in Carter County in 1978.

Infrequent sightings of peregrine falcons in migration have occurred in the area.

## RECREATION AND WILDERNESS

### Recreation

Within the EIS area, the Bureau administers 14% of the surface property. Although the Bureau manages a small fraction of the land base, the importance of public land to the sportsman should not be underrated. As local populations expand in eastern Montana (due to energy development), the Bureau anticipates increased pressure on public land.

The most popular recreational activities are hunting and driving for pleasure. Other recreation activities include fishing, ORV use (mainly associated with hunting), collecting (agates and fossils), varmint hunting, camping, hiking and water sports (along the Yellowstone and Missouri Rivers).

### Wilderness

The wilderness inventory has been completed in accordance with Section 603(a) of the Federal Land Policy and Management Act (FLPMA). Two units, Terry Badlands (MT-024-684) and Musselshell Breaks (MT-024-677), have been identified as Wilderness Study Areas (WSA) (Map 1, Map Supplement). Both areas possess the necessary characteristics of size, naturalness and outstanding opportunity for solitude and/or primitive and unconfined recreation to qualify them for further study.

The Terry Badlands and Musselshell Breaks units (Table 3.7) will be evaluated to consider all multiple use values in determining suitability for preservation as wilderness. Until the planning process is complete and a final determination on the wilderness suitability is made, both areas will be managed under the Interim Management Policy and Guidelines for Lands under Wilderness Review (IMP) (December 1979). The IMP states that the grazing use authorized during the 1976 grazing fee year is "grandfathered" and may continue. Range developments existing or under construction as of passage of FLPMA (October 22, 1976) may continue to be used and maintained. New range improvements and/or changes in grazing levels or seasons of use will be allowed only if the action is found to be consistent with the IMP.

TABLE 3-7
SUMMARY OF WILDERNESS STUDY AREAS

| | Terry Badlands | Musselshell Breaks |
|---|---|---|
| Unit Number | MT-024-684 | MT-024-677 |
| Acreage | 44,515 | 8,050 |
| Allotments Affected | Haughian Lvst. — 2747 | Gordon Dockery — 6372 |
| | Reukauf — 2780 | Carl Peterson — 6775 |
| | Hines — 2750 | Rowtan, L. & V. — 6377 |
| | C.M. Coffee-Nefsy — 2772 | |

## CULTURAL RESOURCES

The cultural environment of the Big Dry EIS area includes the remnants of prehistoric and historic human residence during the past 12,000 years. Evidence of habitation, economic survival, social ceremony and art occur across the area.

More than 80 percent of prehistoric sites are either lithic scatters or stone circle (tipi ring) sites. The remaining sites are bison or other animal kill sites, associated cairns and stone alignments, other kinds of human habitation sites, rock art and burials.

Of the historic properties inventoried to date, the vast majority are abandoned homesteads. These are characterized by foundations or foundation pits, agricultural equipment, debris and structures occasionally left standing.

The amount of public land in the Big Dry EIS area (1,178,777 acres), precluded a comprehensive survey to determine all historic and cultural properties that might be eligible for inclusion in the National Register of Historic Places. BLM has completed an existing data (Class I) inventory of the entire area, however, and identified no properties that are included in the National Register and fewer than 50 that appear to meet the criteria for inclusion in the National Register. Future inventory can be predicted to identify more National Register quality sites.

The cultural site inventory for public lands in the area is approximately 2 percent completed. About 150 sites (most of which are prehistoric) have been recorded. Available sampling inventory data on about 5 percent of the area indicates a density of 1.5 to 5 sites per 640 acres. Site density varies, however, according to the general terrain and environment type. Some environmental zones in the study area have not been adequately surveyed to accurately predict site occurrence. The existing data does offer reasonable understanding of the kinds of cultural properties likely to be encountered (Table 3-8).

TABLE 3-8
CULTURAL RESOURCES IN THE EIS AREA

| Cultural Period | Cultural Evidence |
|---|---|
| Paleo-Indian<br>(10,000 - 6,000 B.C.) | stone tools<br>camp sites |
| Early and Middle<br>Plains Archaic<br>(6,000 - 1,000 B.C.) | bison traps<br>camp sites<br>bone debris |
| Late Plains Archaic<br>(1,000 B.C. - 500 A.D.) | bison traps and pounds<br>stone tools<br>tipi rings<br>fire-broken rock<br>bone debris<br>rock alignments |
| Late Prehistoric<br>(500 - 1,800 A.D.) | stone tools<br>tipi rings<br>cairns<br>rock alignments<br>buffalo jumps and kill sites<br>rock art |
| Early Historic<br>(1800 - 1890) | camp sites<br>habitations<br>military sites<br>other structures |
| Late Historic<br>(1890 - ) | early ranching remnants<br>homesteading remnants<br>tools, equipment, debris<br>schools, churches, cemeteries<br>other structures |

# SOCIAL AND ECONOMIC CONDITIONS

## Introduction

The Big Dry EIS area encompasses most of a ten county region. Data limitations prevent the subdivision of counties into smaller units which would more closely reflect the EIS boundaries. All of Dawson, Fallon, Richland, Prairie and Wibaux and portions of Garfield, Rosebud, Custer, McCone and Carter Counties are in the EIS area.

The EIS area is a sparsely settled region (2.3 people per square mile) which showed a population growth rate of 7% during the 1970s. This was a slightly lower rate than the state average for the decade (Table 3-9). Most of the growth in the region occurred in Richland County in the late 1970s, when energy-related development in the county began to flourish. Between the years 1960-70, sizeable population declines were recorded due to out-migration.

In 1980 the entire EIS area contained 4.5 percent of Montana's total population. Projections for 1985 and 2000 have populations slightly declining.

In the study area the proportions of population classified as rural, nonfarm declined during the years 1960-1980 (Table 3-9). The proportion increased for urban and rural farm from 1960-80.

Sidney (in Richland County) with a 1980 population of 5,723, and Glendive (Dawson County) with a population of 6,031 are the major trade and service centers. All other towns have populations of under 2,500 people (Table 3-9). Sidney grew by 26 percent during the decade 1970-80 while Glendive lost 4 percent of its population during the same period.

## Ranch Related Economic Conditions

### Ranch Operations and Related Income

There are currently 708 individual ranch operations with permits to graze public lands. In addition, many ranches are permitted to graze public lands through grazing associations. Where possible, the larger associations have been divided according to share holdings and AUMs assigned to the individual operator; these operations are included in the 708 total. Operations included in the cooperative state grazing districts are permitted on an individual basis and are also included in the individual operations.

Ranch operations with BLM permits comprise approximately 30 percent of the total ranches in the nine-county area. One hundred of the 708 operations have permits for fewer than 25 public AUMs. The dependency of these hundred operations on forage from public lands and the potential impact of grazing adjustments on their operations is not considered significant. Therefore, this analysis concentrates on the remaining 608 operations (see Appendix 3.10).

These 608 ranch operations were placed into 12 categories according to the number of livestock and the acres of cash crops raised. (See Table 3-10.) Although there are a few operations that raise sheep and yearlings, the predominant type of ranch is a cow/calf operation. Where sheep, horses or yearlings are involved, the total number has been converted to equivalent cow units. Over 80 percent of the ranches fall into the 6 small and medium livestock categories, and over 54 percent grow medium or large sized acreages of cash crops.

Dependence of ranch operations on public forage is determined by a combination of several factors: the percentage of the total required forage that public lands provide, the seasons the forage is available and the availability of substitutes for this forage. The percentage is the primary indicator; Table 3-10 shows the average dependency according to ranch size categories. Eighty-nine ranches (14%) are from 41-80 percent dependent on forage from public lands for their total grazing requirement. The average ranch is about 20 percent dependent.

Table 3-11 shows that the 608 farms/ranches generate $13,336,306 annually in returns above cash cost and depreciation. This is the amount available to the operators and their families for their labor and management and their return to their equity capital. Sixty-seven percent of this ($8,892,655) is from the livestock portion of the operations. Gross livestock sales from these 608 ranches is approximately $51,847,000. Returns per

TABLE 3-9
POPULATION CHARACTERISTICS

| | EIS Area | State of Montana |
|---|---|---|
| 1980 Population[1] | 35,212 | 783,698 |
| Population Change 1970-1980[1,2] | +7% | +13% |
| Population Change 1960-1970[2] | -9% | +3% |
| Net Migration Rate 1970-1977[3] | -5% | +4% |
| Net Migration Rate 1960-1970[4] | -20% | -9% |
| Projected Population 1985[5] | 33,300 | 823,100 |
| Projected Population 2000[5] | 32,500 | 935,600 |
| Density (persons/sq. mi.) 1980[1,6] | 2.3 | 5.3 |
| Urban Pop. 1980 (% of total)[1,8] | +33% | — |
| Urban Pop. 1960 (% of total)[2,8] | +32% | — |
| Rural Non-Farm Pop. 1980 (% of total)[1,9] | +10% | — |
| Rural Non-Farm Pop. 1960 (% of total)[2,9] | +16% | — |
| Rural Farm Pop. 1980 (% of total)[1,10] | +57% | — |
| Rural Farm Pop. 1960 (% of total)[2,10] | +52% | — |
| Number of Farms, Ranches 1969-1978 | -8.9% | -1.8% |
| Avg. Size of Farms, Ranches 1969-1978 | +2.5% | +0.8% |

Population of Incorporated Places of
1,000 Persons or More

| | Baker (Fallon) | Sidney (Richland) | Fairview (Richland) | Glendive (Dawson) |
|---|---|---|---|---|
| 1980 Population[4] | 2,357 | 5,723 | 1,351 | 6,031 |
| Change 1970-1980[4,7] | -9% | +26% | +41% | -4% |

Total EIS area includes: all of Dawson, Fallon, Richland, Prairie, Wibaux, and portions of McCone, Garfield, Rosebud, Carter and Custer Counties

[1] 1980 Census of Population and Housing - Preliminary Report, PHC8-P-28, Census Bureau, US Dept. of Commerce, December 1980.

[2] 1970 Census of Population - Advance Report, PC(V1)-28, Census Bureau, US Dept. of Commerce, September 1970.

[3] US Bureau of Census, Estimates of the Population, Series P-26, US Dept. of Commerce, 1976.

[4] County Profiles, MT Dept. of Comm. Affairs, Research Information Systems, April 1978.

[5] MT Population Projections 1980-2000, Research & Information Systems Division, Dept. of Community Affairs, July 1978.

[6] Lower Yellowstone Area Socioeconomic Analysis, Centaur Management Consultants, May 1978, P. 9.

[7] Census of Agriculture, US Dept. of Commerce, Census Bureau, 1974 and 1980.

[8] Urban classification includes incorporated communities of 2,500 or more population.

[9] Rural nonfarm includes incorporated communities of 1,000 to 2,500 population.

[10] Rural farm classification includes unincorporated communities of less than 1,000 and farms and ranches.

farm/ranch were estimated by formulating a budget for a representative farm/ranch for each of the 12 type and size categories (Appendix 3.10). Returns for each farm/ranch were then aggregated to determine total amounts.

On the basis of 1977-79 average prices, the representative farm/ranch in each size and type category earns enough income to at least cover cash costs and depreciation (Table 3-11). Returns of $6,810 annually for the small livestock/small cash crop operation are not enough to pay the operator minimal wages. Also there is no return to equity capital. Some of these ranch operators and their families are employed off the ranch to supplement their incomes. If they do not have off-ranch employment and the returns are not enough to cover family living expenses, then they usually allocate funds from the depreciation allowance, at least in the short run. If this happens, the operators must live with deteriorating equipment and without improvements and borrow on their equity when replacement becomes unavoidable.

Based on the ranch budgets, it is estimated that the equivalent of one work year of hired labor is required for every 250 cows. Thus, livestock-related employment for the 608 farms/ranches in the EIS area is estimated to be the equivalent of 363 full time employees.

**Permit Value**

The BLM does not recognize the right of the permittee to treat grazing permits as real property. These permits do have value, though, and are bought and sold in the marketplace and used as collateral for loans (McConnen 1976). The value of the permits vary considerably. If the permit is for small isolated, landlocked tracts of public lands, then the value is minor. Where public lands provide a large block of grazing, the permit value can be substantial. Permit value is difficult to estimate because it usually is not separated from the total value of the ranch. Also, ranches are usually valued and sold on a cow-unit basis. It is estimated that an average value for BLM grazing permits is approximately $100 per AUM or $1,200 per animal unit.

Total value for BLM grazing permits of the 608 farms/ranches is approximately $24,614,800. (The value of permits for operations with fewer than 25 BLM AUMs and some smaller grazing associations is not included in this figure.) The 58 very large livestock/small cash crop farms/ranches have the highest total permit value, $4,814,000.

TABLE 3-10
ESTIMATED CURRENT DEPENDENCY OF RANCHES ON BLM GRAZING

| Farm/Ranch Size Category | Category # | % | Avg. Herd Size (Cow Units) | 0-20% | 21-40% | 41-60% | 61-80% | Avg. % Dependency |
|---|---|---|---|---|---|---|---|---|
| Small Livestock & Small Cash Crop (0-150 cows; 0-25 acres cash crop) | 140 | (23.0%) | 100 | 77 ( 55%) | 36 (26%) | 11 ( 8%) | 16 (11%) | 24.4 |
| Small Livestock & Medium Cash Crop (0-150 cows; 26-500 acres cash crop) | 124 | (20.4%) | 100 | 78 ( 63%) | 27 (22%) | 17 (14%) | 2 ( 1%) | 23.4 |
| Small Livestock & Large Cash Crop (0-150 cows; 500+ acres cash crop) | 36 | ( 5.9%) | 100 | 15 ( 42%) | 9 (25%) | 7 (19%) | 5 (14%) | 31.1 |
| Medium Livestock & Small Cash Crop (151-375 cows; 0-25 acres cash crop) | 104 | (17.1%) | 250 | 79 ( 76%) | 13 (13%) | 11 (10%) | 1 ( 1%) | 15.1 |
| Medium Livestock & Medium Cash Crop (151-375 cows; 26-500 acres cash crop) | 62 | (10.2%) | 250 | 39 ( 63%) | 13 (21%) | 8 (13%) | 2 ( 3%) | 19.5 |
| Medium Livestock & Large Cash Crop (151-375 cows; 500+ acres cash crop) | 27 | ( 4.4%) | 250 | 25 ( 93%) | 2 ( 7%) | 0 ( 0%) | 0 ( 0%) | 9.0 |
| Large Livestock & Small Cash Crop (376-749 cows; 0-25 acres cash crop) | 58 | ( 9.6%) | 500 | 47 ( 81%) | 5 ( 8%) | 5 ( 8%) | 1 ( 2%) | 15.6 |
| Large Livestock & Medium Cash Crop (376-749 cows; 26-500 acres cash crop) | 17 | ( 2.8%) | 500 | 12 ( 70%) | 2 (12%) | 2 (12%) | 1 ( 6%) | 14.4 |
| Large Livestock & Large Cash Crop (376-749 cows; 500+ acres cash crop) | 6 | ( 1.0%) | 500 | 6 (100%) | 0 ( 0%) | 0 ( 0%) | 0 ( 0%) | 4.0 |
| Very Large Livestock & Small Cash Crop (750+ cows; 0-25 acres cash crop) | 29 | ( 4.8%) | 1500 | 25 ( 86%) | 4 (14%) | 0 ( 0%) | 0 ( 0%) | 11.0 |
| Very Large Livestock & Medium Cash Crop (750+ cows; 26-500 acres cash crop) | 3 | ( .5%) | 1500 | 2 ( 67%) | 1 (33%) | 0 ( 0%) | 0 ( 0%) | 16.0 |
| Very Large Livestock & Large Cash Crop (750+ cows; 500+ acres cash crop) | 2 | ( .3%) | 1500 | 1 ( 50%) | 1 (50%) | 0 ( 0%) | 0 ( 0%) | 21.7 |
| TOTAL | 608 | (100 %) | | | | | | |

Source: BLM 1981

## Social Conditions

In July and August of 1981, a BLM sociologist conducted a series of informal telephone interviews with 61 ranchers in the resource area (8% of total area operators). Highlights of those interviews, supplemented by written comments gathered during the MFP public participation process, were used to develop this section. For an explanation of the methodology used, see Appendix 3.11.

The average age of ranchers interviewed was 56 years. This is slightly higher than the average age of area operators (50.1 years) reported in the 1978 Census of Agriculture for the nine-county study area. The median number of school years completed by operators surveyed was 11 years, with 10 ranchers indicating they had at least some college background.

All but two of the ranchers interviewed have lived in the resource area for five years or more. Length of family tenure in the district varied from 3 to 91 years with most of those interviewed stating that their families had settled in the area around the turn of the century. Most of their spouses were also born and raised on ranches, usually somewhere within or near the resource area.

Fifty-nine of the respondents reported that they presently own or are in the process of buying the ranch which they are working. Ninety-five percent of the respondents identified ranching as their primary occupation. Very few of those interviewed reported that they or immediate members of their families have outside employment or income sources other than ranching although many seemed to think a second source of income is a necessity for anyone starting out in the livestock business today.

Historically the resource area has been dominated by agriculture which has done much to shape both the economic and social structure of the area. The prevailing lifestyle is strongly tied to the land, to a sense of independence, self-reliance and stability characteristic of rural areas.

Ranchers interviewed generally placed a high value on the lifestyle associated with ranching, although they stated repeatedly that it is rarely a lucrative business for the small operator. Attributes of the lifestyle which they found to be particularly appealing were the opportunity to be their own boss, the ability to work out-of-doors, the challenging nature of the work and the relative isolation of the ranch. Oftentimes the ranch was mentioned as an attractive and healthy place to raise a family. Children are assumed to learn at any early age to accept responsibility and to develop a respect for the land and for nature. Many respondents noted, however, that their reasons for being in the ranching business were simply pragmatic: they were born and raised on ranches, it is the only life they know and the only one they feel they can comfortably live with.

Only a few ranchers interviewed gave economic reasons for being in the livestock business. To most ranchers, economics appeared to be more a barrier to continuation in or entry into the ranching industry than it was a reason for being there. Escalating operating costs and low cattle and wheat prices were often mentioned as confounding operators' attempts to make a living off the land. Burgeoning government regulations and interference from "environmentalists" were also commonly seen as threats to the continued viability of the ranching industry.

The fact that the average age of area ranchers is so high would seem to indicate that some major turnover in ranch ownership is likely to occur in the area in the future. Most ranchers interviewed expressed a desire to see their children take over their operation one day, although quite a few respondents felt that it is becoming increasingly harder for young people to get started in the business without some type of financial help. Higher wages and better working conditions available elsewhere were seen as attracting a lot of young people away from the ranching business. The future trend in the area according to some ranchers is that big operators are going to get bigger, as only agribusinesses are assumed to be financially capable of buying land as it becomes available.

Almost all of the ranchers interviewed felt strongly that livestock should have dominant use of public lands, based not only on historic use patterns, but also on the belief that the best use of the land is the most productive one. World food shortages and the importance of red meat production to the social and economic well-being of both local and national populations were also mentioned as reasons why the livestock industry should be protected and encouraged. Also, because of their dependence on public lands to supplement the forage on their private property, many ranchers would face added economic difficulties if use of public lands were withdrawn.

Most respondents believe that, as long-time users of the land, local ranchers are in the best position to judge the overall quality of the range. In the same vein, it is felt by some that the BLM has unrealistic expectations of the land's productivity. Most operators concurred that the present condition of public rangelands in the Big Dry area is satisfactory, given the vagaries of the weather and the natural limitations of the land itself. The majority of respondents felt that, as a class, ranchers would not purposely jeopardize the land by overgrazing it as their economic future is dependent on the continued health of the range. Almost all rancners interviewed reported that they tend to treat public lands as their own. Some respondents reported that they often do not take advantage of their full grazing privileges in years of poor rainfall.

It was the opinion of almost all respondents, however, that BLM should take positive action to improve range conditions where needed. More range improvements would, it was felt, benefit both livestock and wildlife on public lands by increasing the production of vegetation on the range and by leading to better distribution of grazing use. Several ranchers reported repeated frustration in the past in their attempts to get needed range improvements, particularly water developments, constructed on their allotments.

Almost all respondents felt grazing was compatible with multiple use of public lands and emphasized the effectiveness of cattle as management tools on the public range. The general sentiment of those interviewed was that multiple use is already a reality on public rangelands in the area with use of the land well balanced between livestock, wildlife and recreation. Many ranchers commented that numbers of game and nongame animals in the area have appeared to stabilize or even increase over the years, partly because large numbers of deer and antelope are regularly allowed to feed on deeded lands in the region.

Hunting and other recreation use of public lands in the resource area has apparently caused some conflict with grazing in the past as approximately one-third of the ranchers interviewed stated they have had problems with recreationalists entering private land without permission, driving vehicles over pastures, litter-

### TABLE 3-11
### ESTIMATED CURRENT RANCH INCOME BY RANCH SIZE

| Farm/Ranch Size Category | No. of Cows | No. of Acres of Cash Crop[1] | Average of BLM AUMs per Ranch | No. of Farms/ Ranches | Gross Sales Livestock Enterprise All Ranches | Returns Above Cash Cost and Depreciation | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Livestock Enterprise Average Per Ranch | Livestock Enterprise All Ranches | Cash Crop Enterprise Average Per Farm | Livestock & Cash Crop Enterprise Average per Farm/Ranch | Total All Farms/ Ranches |
| Small Livestock-Small Cash Crop | 0-150 | 0-25 | 179 | 140 | $4,301,360 | $6,802 | $952,280 | $8 | $6,810 | $953,414 |
| Small Livestock-Medium Cash Crop | 0-150 | 26-500 | 179 | 124 | 3,809,776 | 6,802 | 843,448 | 8,451 | 15,253 | 1,891,432 |
| Small Livestock-Large Cash Crop | 0-150 | 500 or more | 179 | 36 | 1,106,064 | 6,802 | 244,872 | 32,941 | 39,743 | 1,430,750 |
| Medium Livestock-Small Cash Crop | 151-374 | 0-25 | 396 | 104 | 8,073,936 | 15,001 | 1,560,104 | 13 | 15,014 | 1,561,450 |
| Medium Livestock-Medium Cash Crop | 151-374 | 26-500 | 396 | 62 | 4,813,308 | 15,001 | 930,062 | 8,209 | 23,210 | 1,439,014 |
| Medium Livestock-Large Cash Crop | 151-374 | 500 or more | 396 | 27 | 2,096,118 | 15,001 | 405,027 | 37,514 | 52,515 | 1,417,900 |
| Large Livestock-Small Cash Crop | 375-749 | 0-25 | 830 | 58 | 8,988,840 | 26,458 | 1,534,564 | 12 | 26,470 | 1,535,237 |
| Large Livestock-Medium Cash Crop | 375-749 | 26-500 | 830 | 17 | 2,634,660 | 26,458 | 449,786 | 7,943 | 34,401 | 584,810 |
| Large Livestock-Large Cash Crop | 375-749 | 500 or more | 830 | 6 | 929,880 | 26,458 | 158,748 | 49,360 | 75,818 | 454,907 |
| Very Large Livestock-Small Cash Crop | 750 or more | 0-25 | 1435 | 29 | 12,873,390 | 53,346 | 1,547,034 | 28 | 53,374 | 1,547,849 |
| Very Large Livestock-Medium Cash Crop | 750 or more | 26-500 | 1435 | 3 | 1,331,730 | 53,346 | 160,038 | 5,633 | 58,979 | 176,938 |
| Very Large Livestock-Large Cash Crop | 750 or more | 500 or morc | 1435 | 2 | 887,820 | 53,246 | 106,692 | 40,532 | 98,878 | 187,756 |
| TOTAL | | | | 608 | $51,846,882 | | $8,892,655 | | | $13,336,306 |

[1] Average acres harvested annually does not include summer fallow

Sources: BLM 1981, ASCS 1981 USDA-ERS 1981 ing and leaving cattle gates open. Some area ranchers have suggested that hunters and other users of public lands be required to pay a small fee for range improvements that increase the carrying capacity of the land for wildlife, much as ranchers are required to do for livestock. Multiple use, they believe, should mean "multiple responsibility". The majority of respondents see little conflict between recreation use and grazing on public lands, however.

Most of the ranchers interviewed expressed satisfaction with the job being done by the BLM in their range management programs in the area and report a good working relationship with the agency. Over one-half of the ranchers mentioned they have only limited or very minimal contact with BLM personnel. Concern was often expressed by respondents, however, about the proliferation of government regulations and paperwork that has handcuffed ranchers and local BLM officials in the past and made it hard to get things done. A few ranchers also expressed dissatisfaction with what is viewed as BLM's extreme dependence on "the books", which fails to give due recognition to ranchers' working knowledge of the range.

## Regional Economic Conditions

### Earnings and Employment

Figures for 1978 show sources of employment and earnings for the study area (Tables 3-12, 3-13 and Appendix 3.12). Total employment in the study area was approximately 17,600. Total income was approximately 175 million dollars. Agriculture, government, retail trade, services, transportation and public utilities contribute approximately two-thirds of employment and earnings. Glendive and Sidney serve as major trade and service centers for the region.

TABLE 3-12
STUDY AREA EMPLOYMENT BY SOURCE FOR 1978
(NUMBER AND PERCENT OF TOTAL)

| Source | 1978<br>Number | 1978<br>Percent |
|---|---|---|
| Proprietors | | |
| Agriculture | 2,609 | 14.8 |
| Non-Agriculture | 1,477 | 8.4 |
| Wage & Salary | | |
| Agriculture | 747 | 4.2 |
| Ag. Services, Forestry, Fisheries & Other | 181[1] | 1.0[2] |
| Mining | 940[1] | 5.3[2] |
| Construction | 824[1] | 4.7[2] |
| Manufacturing | 498[1] | 2.8[1] |
| Transportation and Public Facilities | 1,557[1] | 8.9[2] |
| Wholesale Trade | 729 | 4.1 |
| Retail Trade | 2,159 | 12.2 |
| Financial Institutions and Real Estate | 395[1] | 2.2[2] |
| Services | 2,097 | 11.9 |
| Government[3] | 2,818 | 16.0 |
| TOTAL | 17,631 | 100.0 |

The data is derived from Dawson, Fallon, Garfield, McCone, Prairie, Richland, and Wibaux County data.

[1] Data for one, two or three counties are missing because it was not disclosed; thus study area total for that sector is underestimated. Missing data is included in the totals.

[2] Percent is underestimated because of missing information (see 1.)

[3] Figure includes local, state and federal government employees.

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, 1980.

TABLE 3-13
STUDY AREA EARNINGS BY SOURCE FOR 1978
(THOUSANDS OF DOLLARS)
(NUMBER AND PERCENT OF TOTAL)

| Source | 1978<br>Number | 1978<br>Percent |
|---|---|---|
| Agriculture | 26,600 | 15.2 |
| Ag. Services, Forestry, Fisheries & Other | 1,021[1] | .6[2] |
| Mining | 21,052[1] | 12.0[2] |
| Construction | 13,318[1] | 7.6[2] |
| Manufacturing | 6,051[1] | 3.5[2] |
| Transportation and Public Facilities | 32,229[1] | 18.4[2] |
| Wholesale Trade | 9,421 | 5.4 |
| Retail Trade | 16,787 | 9.6 |
| Financial Institutions and Real Estate | 6,148[1] | 3.5[2] |
| Services | 16,942 | 9.7 |
| Government[3] | 22,414 | 12.8 |
| TOTAL | 174,888 | 100.0 |

The data is derived from Dawson, Fallon, Garfield, McCone, Prairie, Richland, and Wibaux County data.

[1] Data for one, two or three counties are missing because it was not disclosed; thus study area total for that sector is underestimated. Missing data is included in the totals.

[2] Percent is underestimated because of missing information (see 1.)

[3] Figure includes local, state and federal government employees.

SOURCE: U.S. Department of Commerce, Bureau of Economic Analysis, 1980.

# CHAPTER 4

# ENVIRONMENTAL CONSEQUENCES

Irretrievable and irreversible commitments of human resources, materials and money would be made in all of the alternatives. This commitment would be governed by whether an alternative is fully or partially implemented. Some idea of the total implementation costs can be realized by the dollar amounts listed in Chapter 2, which include manpower, material and, to a degree, full expenditures.

## INTRODUCTION

This chapter explains the environmental consequences of the four alternatives discussed in Chapter 2. Environmental aspects are analyzed to determine the effect of each proposal or combination of proposals of an alternative. Climate and air quality, recreation, visual resource management, and geology were not analyzed or discussed in this study, since it has been determined that these components would not be significantly affected by any of the alternatives.

The following assumptions have been made in this chapter:

1. BLM would have the funding and staff to implement, monitor and make revisions in AMPs as necessary.
2. BLM would receive sufficient funding for new developments.
3. All range improvements, grazing systems and most land treatments would be completed in 1989, five years from the beginning of the implementation in 1984.
4. Short term impacts are those which would occur during AMP implementation (1983 through 1988). Long term impacts are those following 15 years of AMP implementation (approximately by the year 2003).
5. Newly implemented grazing systems would be adhered to through at least one complete cycle. Unauthorized livestock use would be strictly controlled and would not be a significant impact causing agent.
6. BLM would verify the level of impacts and monitor the AMPs to make necessary adjustments in plans that are not meeting the desired multiple use objectives.
7. The principle resource directly affected is vegetation. Any changes in production, condition, trend, or composition of vegetation would affect other resources.
8. Each alternative is analyzed as though it would be fully implemented as described in Chapter 2.

The effects of the use of various land treatments and grazing systems on soils and watershed are shown in Appendix 4.1. Appendix 4.2 shows the methodology used in calculating watershed impacts.

## ALTERNATIVE A: CONTINUED DEVELOPMENT FOR RANGE UTILIZATION

The evaluation of the 30 existing and 63 proposed AMPs and the 684 non-AMP allotments and non allocated lands would include (but not be limited to): feasibility and need for grazing treatments ie. rest and/or deferment and mechanical treatments as indicated by monitoring systems, special management considerations and protection of, for example riparian zones, crucial wildlife habitat and high erosion susceptible areas, and land treatments and range developments necessary to improve range condition while protecting watershed and wildlife resources.

Initial allocations to livestock are 253,085 AUMs, increasing to 270,115 AUMs in the long term and initial allocations to nonconsumptive uses and wildlife are 759,255 AUMs, increasing to 810,345 AUMs in the long term. Mechanical treatments based on soil capabilities (See Appendices 2.8 and 3.1) are proposed on 128,000 acres. Noxious weed and praire dog control are proposed on 4500 and 560 acres respectively. Nine hundred and sixty-nine new water developments and 230 miles of management fences are also proposed.

### Watershed

Continued development and revisions of management plans is expected to decrease overall sediment yield by 20% and water yield by 18% (Table 4-1.) These decreases would be significant.

Livestock grazing on floodplains during April, May and June, would be used in conjunction with soils, watershed and plant phenology capabilities. Proper grazing management would include rest, deferment and alternating use (Hormay 1970). Absence of livestock trampling on the wet areas would result in increased cover and plant vigor. Streambanks and channels would become more resistant to erosion, water quality would be improved by reduced suspended sediment and fecal bacteria, and water temperatures would be lowered by increased shade (Holechek 1980). Sediment and water yield reductions would be greatest on soil Subgroups 1, 11, 12 and 13.

Approximately 159,000 acres were classified as being in poor or fair condition. Of those acres, 128,000 are capable of mechanical treatment. These treatments are only effective on lands with slopes less than 12% and include soil Subgroups 1, 2, 3, 4, 7, 9, 10, 11 and 13. Large areas of bare soil would be initially exposed to potential wind and water erosion. However, infiltration is improved, leading to increased soil moisture and greater vegetative cover than before treatment (Wight and Siddoway 1972; Ryerson et al. 1980; Saulmon 1973; Neff and Wight 1977; Neff 1980). Sediment yield is expected to be reduced by 200 acre feet per year (ac-ft/yr) and water yield reduced by 10,000 ac-ft/yr, both significant decreases. Long term sediment and water yields are assumed to be near zero. Runoff and erosion would not occur from mechanically treated areas unless precipitation exceeds the storage capacity of the soil (Gifford 1975; BLM 1981b).

Maintenance and new construction of range-related projects (fences, roads, cattle guards and rubs) would not be allowed during wet periods where watershed damage might occur. Range facilities which promote extensive cattle concentrations (wells, fences, salt licks) would not generally be located on floodplains. Proposed range facilities are not expected to change sediment and water yields appreciably.

Surface water developments are the primary source of stockwater. Development of 494 new reservoirs would temporarily disturb soil on approximately 1500 acres. One thousand acres would be upstream of dams and would not contribute sediment downstream. The remaining 500 acres is not expected to affect sediment or water yields.

Any fencing needed for livestock or wildlife purposes is not expected to result in any measureable changes in sediment or water yields.

Ground water developments (wells) disturb very little soil. Their construction would have no effect on sediment or water yields.

Noxious weeds would be controlled. Concentrations of noxious weeds forces livestock to graze more intensely on nearby non-infested areas. This causes reduced vegetative cover and increased sediment and water yields from the heavily grazed areas (Noble et al. 1979). Treatments would result in a slight decrease in sediment and water yields. Noxious weeds appear mainly on soil Subgroups 1, 2, 3, 4, 7, 9, 11, 12 and 13.

Prairie dogs would be controlled, but not eliminated. This control would result in a very slight decrease in sediment and water yields. Prairie dogs inhabit soil Subgroups 4, 8, 9, 11, 12 and 13.

Alloted lands, not under existing or proposed AMP status, are still subject to various controls, e.g., season of use and numbers of AUM's allocated. By exercising these controls, alloted lands presently in poor and fair condition would improve to good or excellent condition. It is expected this improvement would occur by the end of the 15-year period covered by this EIS. Sediment production would be reduced by 15% and water yield reduced by 32%, both significant decreases.

The initial vegetation allocation to livestock of 253,085 AUMs, would be increased to 270,115 AUMs in the long term. This increase would result in a slight increase in consumptive use of water by livestock.

**Conclusions**

This alternative would reduce sediment and water yields significantly (Table 4-1). On 1,178,777 acres of public lands, sediment yield would be reduced by 20% and water yield would decrease in the long term by 18%.

**TABLE 4.1**
**SUMMARY OF WATERSHED IMPACTS BY TREATMENTS AND FACILITIES**

**ALTERNATIVE A**

| Element | Sediment Yield (acre-feet/year) | | Water Yield (acre-feet/year) | | Water Quality | Consumptive Water Use by Livestock (ac-ft/year) | |
|---|---|---|---|---|---|---|---|
| | Initial | Long Term | Initial | Long Term | | Initial | Long Term |
| Grazing Treatments | 416 | 405 | 22,028 | 21,479 | + | | |
| Mechanical Land Treatments on 127,929 acres | 209 | 0 | 10,140 | 0 | + | | |
| Range Facilities | 0 | I | 0 | 4 | 0 | | |
| Water Developments | 0 | I | 0 | I | 0 | | |
| Chemical Treatments | | | | | | | |
| Noxious Weeds | 15 | 2 | 549 | 178 | + | | |
| Prairie Dogs | 9 | 8 | 230 | 189 | + | | |
| Non-AMPs and Unalloted | 514 | 514 | 27,247 | 27,247 | 0 | | |
| Total for Existing and Proposed AMPs | 1,163 | 929 | 60,194 | 49,097 | + | 2,794 | 2,982 |

I — Insignificant
+ — Increase in Water Quality
0 — No change in Water Quality
— — Decrease in Water Quality

SOURCE: BLM 1980-1981

Water quality would improve significantly in the long term with reductions in suspended sediment loading of water bodies. Water consumption by livestock would be 2,982 acre-feet/year in the long term (Table 4-1).

Increases in vegetation production would provide additional residual vegetation and litter cover necessary for watershed protection. Increased cover and litter promotes water infiltration and reduces runoff and erosion.

There would be no irretrievable or irreversible loss to soil or water resources in this alternative.

## Vegetation

Current vegetation allocations would continue (livestock 25%; nonconsumptive and wildlife uses 75%). Plant vigor, production and range condition would be maintained or improved as shown by monitoring studies. Proper use allocation and improved grazing management would ensure maintenance and/or improvement of vegetation community.

Proper use insures a healthy vigorous plant community. The proper use factor for major forage plants is 50-55%. Crested wheatgrass should be used heavily (up to 80%) occasionally to maintain stand quality. Some browse species can be utilized to 60%. Use during high growth periods depletes plant reserves and reduces plant vigor. Repeated use during this period results in reduced vigor, density, and eventually range condition. Deferring use past critical growth stages, rest, and use during dormancy improves plant reserves, vigor and range condition. Fast growing plants, grasses and forbs, generally respond quickly to management while slower growing woody species respond more slowly. Areas in less than good condition (155,462 acres) would improve in condition with a resultant increase in production of 54.5 million pounds of vegetation, the equivalent of 68,120 AUMs.

Improved management, range improvement placement and use supervision would result in improvement of riparian areas. Reduced use of riparian zones as forage areas and shade sources would result in an increase in cover and plant community structure and health.

Restricting the placement of salt, oilers and other developments in these zones would improve habitat condition.

Monitoring and supervision would ensure that range condition objectives were being achieved.

Grazing management would be in one of three categories: allotment management plans (AMPs), season and number, and custodial. Various grazing systems would be applied in these categories. AMPs may include rest rotation, deferred rotation, deferred, seasonal, short duration, or other systems which are variations or combinations of these. Season and number allotments would generally have deferred or seasonal systems while custodial allotments would have seasonal use coordinated with the private land where the public land is a very small part of the allotment and/or the goals of management could be met with this management level. Tame pasture seedings, treated areas, riparian zones, erosion susceptible areas and winter ranges that require special management would use these systems also. Specific system effects are shown in Appendix 4.1.

Land treatment may be necessary to achieve objectives in some cases. Mechanical treatments would include: plowing and seeding, scalping, contour furrowing, pitting, chiselling, ripping, chaining (cabling, railing), dozing, rotobeating and mowing. Other treatments include: prescribed and natural fire and chemical treatment. The overall effect of the proper application of these treatments and associated grazing treatments would be an improvement of range condition and vegetative production. Specific impacts are shown in Appendix 4.1. Treatments would follow guidelines set forth in the MFP and Bureau policy and regulations.

Development of range improvements would reduce available forage very little, but would improve the overall condition of the allotments by providing for more even distribution and utilization.

Control of noxious weeds would be accomplished by chemical (presently most successful), biological, mechanical, or other acceptable methods of good management and policy. Results would be increases in desirable plant species, range condition, species diversity, useful vegetation production and associated watershed and economic impacts.

Control of prairie dogs would have the immediate effect of an improvement in vegetation production and range condition. Production would increase because of improved plant vigor and the transition of the plant community from low to high producing species. Increased vegetation, shade and litter would increase site moisture retention and improve plant growth conditions. Control is best obtained by poisoning. Shooting slows expansion, but is not effective in eliminating towns. Grazing management can slow expansion and has reduced town size (Snell and Hlavachick 1980). Proper forage management is critical to the success of any method or attempt.

### Conclusions

Proper management (stocking, rest, deferment), mechanical treatment and control of noxious weeds and prairie dogs would result in an improvement of ecological range condition. Condition would be maintained or improved on allotments with most lands in good to excellent condition. Allotments with substantial acreage in less than good condition would be improved to good condition. An increase of 17,030 AUMs would result from the improvement. The 30 existing AMPs would be evaluated and revised, if necessary. The 63 allotments would be evaluated for AMP feasibility and 684 allotments would be evaluated for overall management needs (not necessarily system type management).

Condition of riparian areas would be improved.

The long term allocation would increase as shown above.

There would be no irretrievable or irreversible loss of vegetation resources in this alternative.

## Livestock

Proper use grazing levels would provide for sustained forage production and would also lead to high livestock production. Of the 68,120 AUM increase discussed previously, 17,030 would be allocated to livestock and would feed an additional 2,838 adult cattle for a 6-month grazing season.

Most of the present seasons of use would be maintained, however, grazing seasons might be extended in the long term to use the increased forage. This would reduce the winter feeding.

Lost Boy Creek (in Allotment #2750) is used as winter range with no detrimental effect to the watershed. Grazing systems would allow for periodic deferment and/or rest of critical watershed, wildlife, and riparian areas. Treated areas (land treatment, habitat plantings, and forest rehabilitation or development) would also be provided sufficient deferment and/or rest to facilitate treatment success. There would be a temporary loss of livestock forage during rest periods.

Stress due to moving livestock would increase slightly on present and proposed AMPs. Reliable spring forage and cover for young calves would be provided in rest systems. Livestock breeding success would be improved by fencing and closer stock confinement. Changes in the grazing season and systems of nonmanagement plan allotments would be minor and have little impact on stock.

Mechanical treatments would increase the forage base, but certain restrictions would be necessary for animal health. Treated areas would not be grazed for two seasons after treatment. Livestock production would increase and distribution would improve because of treatments and improvements.

Range improvements (except reservoirs, pits, springs) would be placed off floodplains, riparian areas, or critical wildlife habitat if at all possible. Reservoir developments for wildlife habitat would be constructed or modified to assure livestock water by water gap development or pipeline and tank placement outside exclosure areas. Developments would not take place on damage susceptible areas when soils are wet, generally April - June. Fences would be built to assure movement of wildlife.

The use of vehicles would be restricted on fragile soils and treated areas.

The loss of livestock forage of varying amounts would result from the development of habitat management plans. Losses would be minimal in proposed wetland development, but would be more substantial on extensive developments (10 Mile Creek Project) or cooperative cropping of public lands for wildlife habitat development and enhancement projects. Loss of forage would continue on uncontrolled prairie dog towns.

Introduction of bighorn sheep into the Terry Badlands would not significantly impact grazing initially, as no grazing is presently allocated in the proposed introduction area. However, if water projects were developed and drew stock into the area, or the bighorns were to move into adjacent ranges after establishment, adjustments would be necessary.

Exploration for minerals generally causes the loss of an insignificant amount of forage. Mineral development could cause substantial losses in major development areas.

### Conclusion

Livestock production would increase and distribution would improve because of mechanical treatments and range improvements. Grazing seasons might be extended in the long term due to increased forage. Moving livestock on present and proposed AMPs would increase stress slightly. There would be no irretrievable or irreversible loss of livestock resources in this alternative.

## Wildlife

With continued development directed at optimum range utilization, local increases in wildlife could be expected. Such increases cannot be quantified because they would be conditional upon each allotment's characteristics and upon the activities on neighboring private lands.

Livestock and wildlife management can be very compatible. Compatibility would be maintained by identifying and resolving conflicts at the allotment level. Specific actions cannot be discussed in a general document such as an EIS because of differences in: 1) soils, topography and vegetation of individual allotments; 2) operation of those allotments; and, 3) distribution, density, seasonal use and species composition of wildlife occurring on the allotments. Consequently, discussions of impacts here will be general with specifics referred to the allotment planning and management level.

Although 85% of the public lands in the EIS area have been classified in good to excellent range condition, specific habitat conditions have not been classified. Consequently, monitoring of allotment management systems would be designed to evaluate condition, trend and utilization of wildlife habitats. From the results of monitoring, adjustments in allocations of vegetation or grazing systems; or additions of rangeland developments (e.g. fencing, water source development) would be incorporated to maintain or improve crucial habitats or specific habitat needs.

Riparian and woody draw habitats are vulnerable to livestock use (Gjersing 1980). Any type of livestock grazing on riparian and woody draw habitats diminishes woody vegetation. Of the commonly used grazing systems, rest-rotation is the most suitable to maintaining the vegetative diversity of riparian and woody draw habitats. Options for improving those habitats include modifying grazing systems, dispersal of water sources and fencing. A rest-rotation grazing system should be given priority consideration on all areas supporting riparian and woody draw habitats.

Developments in crucial habitats would be carefully evaluated and, if necessary, relocated to protect wildlife values (e.g. minimize placing livestock water and salt sources in riparian and woody draw habitats).

### Big Game

With regard to upland vegetative habitats, big game and livestock uses of public lands have been compatible. To the contrary, extensive conversion of rangelands to grain fields has not supported previous big game numbers. Surveys by the Montana Department FW&P (Region 7) show an inverse correlation between antelope numbers and large-block conversion of rangeland to grain cultivation. This has locally heightened the value of public lands to wildlife. Where livestock and wildlife uses conflict, specific treatments that may be needed (e.g. special vegetation allocations, modifications of grazing treatments, vegetation manipulations) will be identified and applied on a case-by-case basis.

As each AMP is reviewed or implemented, crucial habitats by season of use would be identified and evaluated for needs at the allotment level. Allotment monitoring would be established to track condition, trend and utilization of crucial habitats and to prescribe management treatments. Crucial wintering areas are shown on Map 2 (Map Supplement). Additional crucial habitats will be delineated and monitored as they are identified (i.e., fawning areas, crucial summer range, riparian areas and hardwood draws, etc.)

Because of their importance to big game animals, riparian and woody draw habitats would be treated as previously discussed to improve their condition and allow for regeneration of key woody species.

Proposals for treatments to sagebrush-grasslands would be evaluated to determine effects upon wildlife species that are dependent upon sagebrush. Treatments on antelope winter ranges would be designed to meet the forage needs of antelope

Rest or deferred grazing of areas in less than good condition would improve vegetative production and the quality and quantity of big game forage. Grazing systems on crucial big game ranges would be selected to maintain key vegetative species. On the non-AMP allotments, big game forage production would likely remain the same and the present competition for forage, if any, would likely remain.

Monitoring would be necessary to: 1) evaluate the success in meeting vegetation allocation objectives; 2) identify crucial habitats; and, 3) identify special treatment needs.

Techniques to obtain those data could be simple transect layouts to fence exclosures. Construction costs of facilities would range from a few dollars each for simple transects to approximately $1,000 each for two-acre exclosures. Data collection and analysis and facilities maintenance would cost an estimated $4,000/year, which is primarily manpower funding.

Transplanting wildlife may be desirable to invigorate a population or to utilize currently under used or unused habitats (e.g. introduction of bighorn sheep into the Terry Badlands). (See previous livestock section.) Any proposed manipulations of wild animals must be done in cooperation with the Montana Department of Fish, Wildlife and Parks.

Fencing for livestock and other management purposes would be constructed to allow big game movements as stated in B.5 of the Methods and Range Developments (Appendix 2.2). If woven wire is used, antelope passes or other devices for allowing passage would be provided as needed.

### Upland Game Birds (Sharp-Tailed Grouse, Sage Grouse, Ring-Necked Pheasant)

In the long term additional residual vegetation from rest or deferred grazing treatments on all of the AMP allotments would help provide cover and food for increases in upland game birds. Livestock grazing on areas identified as crucial to grouse nesting and brood rearing would be managed to provide a residual grass cover of 4 to 6 inches if the production potential of the site allows. If the current allocation of 75% to nonconsumptive and wildlife uses does not meet those needs, additional allocation to wildlife would be necessary.

Livestock grazing on sage grouse wintering - nesting complexes would be managed to maintain stands of sagebrush with 15 to 30% crown coverage to meet the annual habitat requirements of sage grouse. Manipulations of sagebrush habitats must be closely evaluated in communication with state wildlife personnel because of the potential effect on wildlife.

Riparian and woody draw habitats would be treated as discussed in the previous section to maintain their values for upland game birds and other wildlife.

### Turkeys

Management for wild turkeys would be provided through maintenance and improvement of habitats as the need and/or opportunities are identified. Treatments to accomplish this would include prescribed burning, plantings and mechanical methods of vegetation manipulation.

### Waterfowl

The response of vegetation to rest at reservoirs, streamside riparian areas and saline seeps would increase the quality and quantity of food and cover used by waterfowl in these areas.

Additional wetlands would be constructed largely in the form of reservoirs for livestock. Blasted potholes and other forms of wetlands may be more desireable where conditions are suitable. The upper ends of existing reservoirs would be considered for fencing to provide cover for waterfowl use as funding and manpower capabilities allow. Wetlands developed for waterfowl use would be managed (using grazing modifications, fencing, etc) to provide nesting and brood-rearing cover and livestock access to water. Wetlands with a moderate to high waterfowl production potential would be managed to provide 8 to 10 inches of residual cover.

### Nongame

Grazing systems would be selected to provide sufficient cover for nongame wildlife. Riparian and woody draw habitats and wetlands would receive either rest or deferred grazing as needed to provide food and cover to a diversity of nongame wildlife species.

Shore bird populations would increase with the improvement of shorelines around reservoirs and natural potholes. New water sources would provide additional shoreline for shore birds.

Allotment boundary, pasture and livestock exclosure fences would provide additional perching sites for many nongame birds such as hawks, eagles, larks and lark buntings.

The known prairie dog towns presently occupy approximately 2900 acres in the EIS area. Permittee requests for prairie dog control on public lands would be evaluated on a case-by-case basis as described in the statewide prairie dog management policy (Appendix 2.6). Under this alternative, if significant range resource damage is being caused, towns may be eliminated or controlled in size. Towns proposed for treatment would have to be surveyed for black-footed ferrets and certified free of ferrets before treatment could be authorized. Nontoxic control methods would be encouraged where feasible to obtain the proposed objectives. Toxic control would be used where other methods will not produce the desired results.

### Fisheries

Reservoirs identified as suitable for recreational fishing would be fenced to provide and maintain a quality fisheries environment. Tanks, water gaps or other means of livestock access to water would be provided.

### Conclusions

The effect of Alternative A on wildlife populations would be dependent upon the levels and types of grazing practices proposed. Livestock use would moderately limit the capability of public lands to provide additional wildlife habitat demand. Such demand would be shifted from private rangelands converted to intensive farming use.

Overall, wildlife habitats would remain at current condition levels. Crucial habitats would be moderately improved. Monitoring would be relied upon heavily to determine that wildlife habitats are not deteriorated and that the objective of crucial habitats are being met.

In the long term, wildlife numbers would remain about the same with short term fluctuations above and below the long term averages. Short term adverse effects on wildlife populations are irretrievable but the situation may be reversible with the capabilities to change management practices.

## Cultural Resources

Cultural evidence is meaningful largely in relation to the degree that the site from which it comes has remained undisturbed. An artifact or feature might be important, but the association or context in which it was found might be much more significant. When these sites are disturbed, the opportunity for serious analysis by the archaeologist or historian is lost, as is important information about the past.

Alternative A calls for the implementation of grazing and land treatments, including the development of grazing systems, construction of range facilities and water developments and use of mechanical treatments such as plowing, seeding or scalping. Because significant adverse effects occur to a cultural site when it is altered by ground disturbance, mechanical treatments and water developments could cause adverse impacts to these resources.

On the other hand, forage allocation, grazing treatments, chemical treatments and range facilities each improve ground cover, but do not cause significant surface disturbance. Thus, they should actually improve preservation of cultural resources by improving the conditions which maintain the integrity of a site. No data exists which allows quantification of such a benefit, however, on the basis of existing cultural resource inventory data for the study area, a density of 1.5 to 5 cultural sites per 640 acres can be determined. (This is an estimate of low statistical reliability given in Chapter 3.) Therefore, under Alternative A, roughly between 200 and 1,000 sites could be adversely affected.

Because a Programmatic Memorandum of Agreement (PMOA) is in effect between BLM and the Advisory Council on Historic Preservation (Appendix 4.3), specific procedures would be followed to identify actual effects of range projects on cultural sites and to avoid or to mitigate those impacts. Therefore, adverse impacts from range developments will generally be avoided through project design. In a few instances, recovery of cultural resource data by scientific excavation may be necessary to mitigate destruction of cultural information

### Conclusion

Inventory and assessment of cultural resources directly affected by range developments would provide immediate gains in scientific knowledge of the area and a data base for long term gains. Long term loss of scientific data could occur if an inventory did not discover a site that was subsequently destroyed during construction. However, the loss is not expected to be great. Any cultural site inadvertently destroyed would be irretrievably and irreversibly lost.

## Social and Economic Impacts

### Ranch Economic Impacts

The short term impact on overall ranch income in this alternative would be minimal. The only change would be the temporary disruption of grazing as mechanical treatments are applied or grazing systems implemented.

In the long term 350 operations would show increases in ranch income while 258 would have no change. These increases are shown by representative size category in Appendix 4.4. The average affected operator would receive approximately a 13 percent increase in public forage and about a 3 percent increase in total ranch AUMs. The average increases in net annual income for the representative operations range from $157 for large livestock and large cash crop operations to $1,408 for large livestock-medium cash crop. The average percentage increases in net annual income range from 6.7% to 0.2%. The smaller representative operations have the larger percentage increases in net income. Total increases in gross annual livestock sales and net annual income to all affected ranch operations would be approximately zero and $205,638, respectively, an increase of 2 percent of the current livestock income for all ranches in the study. Greater income because of increases in public forage would improve the economic well-being of operators in a number of ways. Those who might have diverted funds for allowance for depreciation, deferred maintenance or deferred principal and interest payments would be in a position to use more funds for these purposes. Increased income might also be used to raise the living standards of some operators.

Total permit values in this alternative would increase by $1,703,000 or 6.9 percent of the present total in the long term. These increases would have a beneficial effect on ranchers' borrowing capacity and the sale value of affected ranches. There would be no short term change. The short and long term increases in ranch employment would be zero because there would be no changes in herd size.

### Recreation/Wildlife Related Economic Impacts

There are no quantifiable impacts on game populations under this alternative. As such, there are no quantifiable changes in hunter use, expenditures, or economic impacts.

### Social Impacts

Although difficult to quantify, social impacts to the ranching community from this alternative would be positive overall in both the short and long terms, as ranchers would be in a position to benefit from improved vegetative productivity and increased livestock numbers allowed on the public rangeland. The opportunities available to ranchers to increase their income might, in turn, allow them to improve their standard of living and to strengthen their overall sense of well being.

This alternative also proposes to allow treatment of prairie dogs and noxious weeds. Because this alternative would raise the level of range improvements constructed, it would agree with the perception of the majority of ranchers interviewed that the range must be improved, where needed, if it is to be properly managed. Overall, ranchers who were interviewed felt the condition of public rangelands in the Big Dry area is satisfactory, but said they would welcome the opportunity to be able to adjust management patterns as conditions warrant.

If this alternative were implemented, it would also be expected that the current good working relationship that exists between BLM and the ranching community would be reinforced, as the proposed action was the preference of the vast majority of ranchers interviewed or who submitted written comments.

The social well-being of approximately 350 ranch families would be positively affected in the long term. There are no significant impacts in the short term.

Wildlife advocates and recreationists would experience beneficial impacts from increases in wildlife numbers, resulting in both the short and long terms under the proposed action. Conservation groups concerned about the protection and enhancement of wildlife and wildlife habitat generally favor multiple use of public lands. Thus they would also approve of the balanced multiple use aspect of the proposed action. Some people may feel, however, that the alternative does not depend heavily enough upon use of fences to protect riparian areas, which are a major concern of many wildlife groups across the country. Wildlife enthusiasts may, in addition, anticipate beneficial impacts from additional AMP implementation planned under the proposed action, although the number of AMPs planned may be considered insufficient in the long term.

#### *Conclusions*

Impacts resulting to the ranching community from this alternative would be positive overall in both the short and the long terms. Ranchers would be in a position to experience income gain due to the improved productivity of the public range. This, in turn, would lead to increased levels of well being and sense of security regarding the future. Current positive attitudes toward the BLM would be reinforced, as this was the preferred alternative of almost all ranchers interviewed or submitting comments, most of whom say they are satisfied with the present condition of public rangelands in the area.

Impacts to members of wildlife groups and to recreationalists would be beneficial overall, due to the increases in wildlife numbers expected in both the long and short term.

### Regional Economic Impacts

Appendix 4.5 shows the impact on output, earnings and employment of increased livestock sales, range development construction, recreationist expenditures and government employment. Impacts are shown in both the short and long term. In the short term the largest effect on earnings would be from increased construction. There would be no effect in the long term on earnings.

Total employment would increase by 134 people in the short term and no additional hiring in the long term. Total earnings would increase by $1,635,000 annually in the short term and none additional in the long term.

#### *Conclusions*

In the short term, there would be no change in incomes, permit values or employment for ranch operations.

In the long term, income for 350 ranch operations would increase by $205,638 annually (an increase of 2.3 percent over the current livestock income for all ranches in the study). Permit values would increase by 6.9 percent and ranch employment would not change. These increases would be moderately significant.

The short term direct and indirect increases of less than 1.0 percent in study area earnings and employment would be insignificant overall. There would be no change in the long term.

There would be no irretrievable or irreversible loss under this alternative.

## ALTERNATIVE B: ENHANCED WATERSHED VALUE AND WILDLIFE HABITAT

The area's 30 AMPs (covering 227,776 acres) would be revised to meet this alternative's objectives of enhancing watershed values and wildlife habitat. An additional 63 AMPs (covering 294,798 acres) would be developed, incorporating grazing and land treatments to meet the same objectives. An additional 684 allotments (651,781 acres) would not be considered for AMPs at this time. A total of 4,442 acres remain as unallocated land in scattered, small tracts through the resource area. The number of AMP and nonsystem allotments would be the same as for alternative A, but grazing treatments and individual AMP objectives would reflect the change in management emphasis.

The initial allocation to livestock would be 19 percent less than the current permitted use of 253,085 AUMs. The reduction in livestock AUMs would result from grazing deferment until July 1: (1) on those areas susceptible to damage by use during wet seasons, (2) on riparian and wooded areas, and (3) to reserve winter wildlife forage and vegetation on prairie dog towns and the elimination of grazing on 193 allotments (179,988 acres) where crucial wildlife habitat occurs.

Water development and noxious weed control would be the same as outlined for Alternative A. Other range developments and actions would be: (1) pasture or allotment boundary fences; and, (2) prairie dog control would be applied only to protect private land and crucial wildlife habitat.

### Watershed

Enhancement of watershed and wildlife habitats is expected to reduce overall sediment yields by 28% and overall water yields by 23% (Table 4-2). The decreases would be significant.

This alternative would have essentially the same long term effect on watershed as Alternative A except for floodplain areas. In Alternative B there would be no livestock grazing on floodplains during April, May and June each year and on the 193 allotments (179,988 acres) where crucial wildlife habitat exists. In Alternative A, livestock would be deferred from grazing on floodplains when and where possible.

There would be about 50,000 less AUMs allocated to livestock in Alternative B than in Alternative A. Some of these lost AUMs are the result of the three month deferment. This loss in AUMs would mean less cattle trampling, soil compaction, streambank sloughing and greater vegetative cover. Sediment and water yields would subsequently be slightly reduced.

Mechanical treatments, development of range facilities and water sources, treatment of noxious weeds, and fencing would have the same effect on sediment and water yields as in Alternative A.

Prairie dogs would be allowed to increase short of affecting private lands or crucial wildlife habitats. This would result in a very slight increase in sediment and water yields.

TABLE 4.2
SUMMARY OF WATERSHED IMPACTS BY TREATMENTS AND FACILITIES

ALTERNATIVE B

| Element | Sediment Yield (acre-feet/year) Initial | Sediment Yield (acre-feet/year) Long Term | Water Yield (acre-feet/year) Initial | Water Yield (acre-feet/year) Long Term | Water Quality | Consumptive Water Use by Livestock (ac-ft/year) Initial | Consumptive Water Use by Livestock (ac-ft/year) Long Term |
|---|---|---|---|---|---|---|---|
| Grazing Treatments | 416 | 405 | 22,028 | 21,646 | + | | |
| Mechanical Land Treatments on 127,929 acres | 209 | 0 | 10,140 | 0 | + | | |
| Range Facilities | 0 | I | 0 | 4 | 0 | | |
| Water Developments | 0 | I | 0 | I | 0 | | |
| Chemical Treatments | | | | | | | |
| Noxious Weeds | 15 | 2 | 549 | 178 | + | | |
| Prairie Dogs | 9 | 10 | 230 | 245 | 0 | | |
| Non-AMPs and Unalloted | 514 | 414 | 27,247 | 24,473 | 0 | | |
| Total for Existing and Proposed AMPs | 1,163 | 831 | 60,194 | 46,576 | + | 2,257 | 2,434 |

I — Insignificant
+ — Increase in Water Quality
0 — No change in Water Quality
— — Decrease in Water Quality

SOURCE: BLM 1980-1981

Consumptive use by livestock would increase slightly in the long term, but would be lower than Alternative A because of the loss in AUMs.

**Conclusions**

This alternative would result in a 28% decrease in sediment yield and a 23% decrease in water yield in the long term (Table 4-2).

Water quality would improve significantly with reductions in suspended sediment in surface waters. Water consumption by livestock would be 2,434 acre-feet/year in the long term.

Improvements in watershed condition would be due mainly to the deferment of grazing for 2 months in the spring. Spring deferment would allow plants time for phenological development that improves plant production and consequently watershed cover.

There would be no irretrievable or irreversible loss to soil and water resources in this alternative.

### Vegetation

Vegetation would be allocated to livestock at a lower level in the short term. There would be a slight increase in the long term, but the present allocation levels would not be reached. Grazing of severe erosion potential areas and floodplains would be eliminated during April, May, and June. No livestock grazing would be allowed on critical wildlife winter range or riparian areas. Livestock allocations would be reduced by 19% (48,674 AUMs).

Because of grazing deferment, rest treatments, or lighter range use, about 158,000 acres would improve in ecological condition. Vegetation production would increase by 68,120 AUMs (in terms of livestock AUMs). A total of 17,030 AUMs (25%) of the increase would be allocated to livestock (Appendix 2.4). The remaining 51,090 AUMs (75%) would be allocated to nonconsumptive and wildlife uses.

Vegetation on areas deferred from spring grazing would improve in vigor, density, and production because of rest from grazing during critical growth stages. Cool season grasses and forbs would generally respond quickly to this treatment. Warm season grasses, shrubs, and trees would not respond as quickly.

Vegetation on rested or grazing-excluded areas (crucial wildlife winter ranges, habitat development areas, riparian zones) would respond similarly. All species would benefit, but slower growing trees and shrubs would benefit most. Shrub and tree regrowth would occur more quickly than on deferred areas. Overall plant production would increase to near potential and then decrease as the vegetation community stagnated.

Vegetation on those areas grazed under other grazing systems would improve, but at a slower rate. Plant production, vigor, and density would increase to that expected on good quality rangeland.

If rangelands fail to respond to grazing treatments and mechanical treatment becomes necessary, about 128,000 acres could be treated (Appendices 2.8 and 3.1). If sufficient desirable native seed is available prior to mechanical treatments or is interseeded, vegetation production would increase an equivalent of 55,140 livestock AUMs. Only 25 percent of this total (13,785 AUMs) would be allocated to livestock. The remaining vegetation would be allocated to watershed cover and wildlife habitat.

Livestock trailing along fences would reduce vegetation production slightly. Water developments, management fences and the proper placement of salt and minerals would reduce the use of floodplains and other concentration areas by improving livestock distribution.

Leafy spurge and other noxious weeds would be controlled, as discussed previously and result in an improvement of 4,500 acres of public land. Prevention of infestation of other lands would result.

Vegetation production on prairie dog towns would continue at its present low level. Additional lands would be colonized by prairie dogs and ecological condition, plant vigor, and production would decline.

Habitat and forest plantings would become established and their vegetative production would increase. That increase would likely coincide with a similar decrease in the natural plant community.

Monitoring would be done to insure the accomplishment of management objectives as discussed previously.

### Conclusions

Deferment of spring use, light grazing, rest and deferment treatments, mechanical treatments and noxious weed control would improve the ecological condition of 95,491 acres. Plant vigor, litter cover and water infiltration would improve on all allotments.

Treatments would improve vegetation conditions in riparian areas, around reservoirs, floodplains and erosion susceptible areas.

The long term livestock allocation would be 32,646 AUMs or 13 percent below the present 253,085 AUMs, a significant decrease; nonconsumptive and wildlife AUMs would increase from 759,255 to 860,021 or 12 percent.

Ecological range condition would improve significantly.

There would be no irretrievable or irreversible loss of vegetation resources in this alternative.

## Livestock

This alternative would reduce current livestock AUMs by 19+ percent. The loss of grazing during April to June on erosion susceptible areas and floodplains and of all grazing on crucial wildlife winter ranges and riparian areas would have a very high negative impact on livestock. A total of 48,674 AUMs of forage would be lost from these areas (Appendix 2.4), but a far larger amount of forage would be lost from other public and private lands in the same pasture. Grazing would be totally eliminated in the spring or yearlong on some allotments, if this alternative is adopted.

Fencing of these areas would allow grazing on noncrucial lands, but due to the nature (scattered, small, often linear, mixed ownership) of these tracts, fencing would not be a viable alternative. A huge investment of labor, materials and construction of additional water sources would be required for construction and maintenance of fences as required. Management would be made very difficult by the reduction in pasture size, stock traps created by exclosure fences, odd shaped pastures, and additional water needs. The mixed public-private land ownership pattern rules out fencing or grazing exclusion on these lands. However, for analysis purposes, an additional 1532 miles of fence would be considered to exclude or restrict grazing from/on riparian zones, floodplains, wildlife reservoirs, winter ranges, or prairie dog towns as specified in MFP 1.

The 204,411 AUMs allocated in the short term and the 220,439 AUMs allocated in the long term would allow grazing at light use levels. About 20 percent of the vegetation would be used by livestock. This level of use would be beneficial to livestock production as the stock could be more selective grazers. Any change from the current livestock production levels would be dependent on the present degree of use in a particular allotment. Changes would vary from none to significant improvements in per-animal production.

Livestock production would also be affected by loss of use of some plants that are only available or palatable in the spring. Bluegrass, prairie junegrass and many forbs complete their life cycles during the period when grazing would not be allowed and these plants become dry and unpalatable during the time grazing would be allowed. Needle and thread, another important livestock forage plant, develops sharp awns in the summer, reducing its palatability. Although forage supplies would be abundant at the beginning of the grazing season, livestock would not fully benefit, since the greatest livestock gains take place when forage is green and growing (Hormay 1970; Smoliak 1960).

Mechanical treatments would increase forage supplies as discussed previously. Forage increases due to grazing and mechanical treatments would not offset the grazing reduction discussed above.

Other forage losses would likely result from several recommendations made in this alternative. Habitat management areas (Ten Mile Creek, westland habitat and fisheries development) would be devoted to wildlife purposes and the exclusion or reduction of livestock grazing would be a distinct possibility. Fencing of selected reservoirs and riparian areas without provision for livestock water would improve the vegetation resource in the fenced areas, but would eliminate grazing on the range dependent on that water source. Uncontrolled prairie dogs would increase substantially and decrease livestock allocated forage.

The introduction of bighorn sheep into the Terry Badlands would have the immediate effect of delaying livestock allocation increases to adjacent allotments. The ultimate effect of the introduction would vary from none to a reduction of livestock allocations or prohibition of domestic sheep use on adjacent ranges.

### Conclusions

This alternative would result in an increase for watershed and wildlife of 48,674 AUMs in the short term and 100,766 AUMs in the long term. Livestock numbers would decline as a result in a loss of 48,674 AUMs in the short term and a loss of 32,646 AUMs in the long term.

There would be an irretrievable reduction in permitted AUMs in this alternative but this would not be irreversible.

## Wildlife

Vegetation allocations, livestock grazing systems, vegetation manipulations, mechanical treatments and range improvements on crucial wildlife habitats would be restricted to those that enhance the wildlife values of those habitats. Special management needs of crucial habitats would be identified through the monitoring system. Management methods to meet those needs would be implemented in AMPs.

Acquisition by exchange, purchase or lease agreement of crucial habitats or portions of crucial habitats would be considered to improve management opportunities.

### Big Game (Deer, Antelope and Bighorn Sheep)

A general vegetation allocation of 75% for nonconsumptive and wildlife uses and 25% for livestock would adequately meet the general cover and forage requirements of big game species in the area. However, special management for crucial habitats (e.g. winter range, fawning areas, crucial summer range) would be identified through monitoring and implemented. Significant, permanent increases in deer and antelope numbers are not expected to occur as discussed under Alternative C.

In accordance with Step 1 of the Management Framework Plans for the EIS area, all of the vegetation on winter ranges would be allocated to wildlife (all species) and watershed. This involves approximately 180,000 acres of public land in 193 allotments. The vegetation reservation would be approximately 30,242,400 pounds. At 800 pounds monthly forage requirement for cows, winter range reservations for wildlife equate to a loss of nearly 38,000 AUMs. To effect this reservation, grazing deferments would be utilized to minimize competition for big game winter forage. Fencing may be necessary, but only as a last resort.

Areas identified for vegetation manipulation could provide a diverse plant community if the treatment methods were prudently selected and applied. Such treatments would benefit big game and other wildlife in terms of food and cover.

Resting riparian and woody draw habitats by the most compatible and economic methods (modified grazing, fencing, etc.) would provide additional forage and cover for big game. Rest rotation grazing would be given priority consideration, since it is the most compatible system for sustaining riparian and woody draw habitats.

Reintroduction of bighorn sheep into the Terry Badlands would be evaluated and implemented, if feasible. There is no present allocation of forage to livestock in a portion of the Terry Badlands and that reservation for wildlife would be maintained as long as introduction efforts produce viable results. Such a program would be conducted in cooperation with the Montana Fish, Wildlife and Parks Department. To accommodate expansion in population and distribution, there would be no increment in livestock forage allocations on adjacent allotments.

Fences would be the least restrictive to big game movements as stated in B.5 of the Methods and Range Developments (Appendix 2.2).

### Upland Game Birds (Sharp-Tailed Grouse, Sage Grouse, Ring-Necked Pheasant)

Livestock grazing would be managed to leave 4 to 6 inches of grass for nesting and escape cover for ground nesting birds on range sites capable of such production. Spring-early summer deferment of residual vegetation would provide adequate cover for nesting and brood rearing for upland game birds on AMP allotments. Grazing treatments that allow additional rest or deferment would be used to provide residual winter food and cover. Upland game bird production would increase slightly.

A variety of food and cover could be made available to upland game birds (especially sharp-tailed and sage grouse) with well planned vegetation treatments (burning, mechanical, chemical, etc.)

Riparian and woody draw habitats would be treated as needed to improve their condition. Possible treatments include changes in grazing systems and/or seasons, improved water distribution, vegetation manipulation, and fencing. These treatments would be considered on a case-by-case basis. Vegetation plantings would also be considered to stabilize drainages.

Sagebrush habitats would be maintained to provide stands with canopy coverage of 15 to 30%. These densities provide the stand diversity needed to meet sage grouse requirements for nesting, brood rearing and winter use. Sage grouse population should show a slight increase.

### Turkeys

Vegetation management on important wild turkey habitats (e.g. areas used for nesting, wintering, roosting) would include compatible grazing systems, vegetation plantings and prescribed burning. Suitable treatments would be implemented to meet the needs of turkeys using those habitats.

### Waterfowl

The vegetation response from resting high value riparian vegetation and saline seeps would increase the quality and/or quantity of food and cover and contribute to increased waterfowl production.

New and existing fisheries reservoirs would be fenced with a 100-foot buffer strip along the shoreline for wildlife needs. Depending upon the size of the reservoir (using the smallest and largest known in the EIS area as outer limits), 200 to 2400 pounds of vegetation would be removed from livestock use at each reservoir site. (See Appendix 2.1, Recommendation WL-3.4 for computation rationale.) At 800 pounds of forage equivalent to one AUM, forage removal could cost from 0.25 to 3 AUMs of livestock use at each reservoir. Increase in waterfowl use and production cannot be quantified.

Existing reservoirs with a good potential for use could be improved for waterfowl production with construction of nesting islands and installation of artificial nesting structures.

Fencing may become necessary to enhance waterfowl values of existing reservoirs with a high potential for waterfowl production.

On suitable soil types, wetlands other than reservoirs (blasted potholes, water spreading dikes, canals) might be constructed to benefit waterfowl. No specific locations or projects have been identified.

### Nongame

Range management and livestock exclosure fences would provide additional perching sites for many nongame birds. Complete resting of riparian habitat, periodic resting of woody draw habitat and fencing of reservoir seeps would provide food and cover to a wide variety of nongame.

Applications of pesticides on public lands would be carefully evaluated to prevent indiscriminant treatments. Label cautions and directions would be followed. Buffer zones would be provided between treatment areas and water areas. Use of chlorinated hydrocarbons (DDT, Endrin, Dieldrin) to control insects would be prohibited on public lands.

Shore birds would increase with the improvement of existing and additional reservoir shorelines.

Approximately 2900 acres of prairie dog towns are currently known to occur in the EIS area. Vegetation on prairie dog towns would be allocated to wildlife. Restricting water developments to further than 1/4 mile from prairie dog towns would support such allocation. If towns were untreated (i.e., except when threatening to private lands and/or crucial wildlife habitats or becoming a reservoir for incubation and dispersion of disease), prairie dogs would consume additional acreage and reduce additional livestock forage (assume 5% increase in affected area per year). Potential habitat for the black-footed ferret, burrowing owl, mountain plover and other species associated with prairie dog towns would be maintained.

### Fisheries

Seventeen existing and 33 proposed reservoirs are identified as suitable or potentially suitable for fisheries. (See New Prairie and Jordan-North Rosebud MFPs.) These would be fenced to reserve all of the vegetation within 100 feet of the high water level. Nearly 40,000 pounds of vegetation would be removed from livestock use, which equates to almost 50 AUMs. Additional reservoirs developed for fisheries use would be treated similarly.

### Conclusions

The effect of Alternative B on wildlife populations is less dependent upon levels and types of grazing practices proposed than Alternative A. Livestock use would not seriously limit the capability of public lands to accommodate additional wildlife habitat demand shifted from private rangelands converted to intensive farming use. Overall, wildlife habitats would remain at current condition levels. Crucial habitats would experience accelerated improvement in the short term. Certain resultant successional changes (i.e., reversion of shrub ranges back to grasses) may not provide optimum big game forage production.

Unique to this alternative would be the proposal to allocate 100% of the vegetation on winter ranges to wildlife. Included in this category, is the proposal to fence existing and future fishery reservoirs to promote cover for nesting waterfowl.

Monitoring would be relied upon heavily to insure that wildlife habitat objectives are met.

In the short term, wildlife numbers would increase. In the long term, overall wildlife numbers would average higher than in Alternative A. Cycle flutuations above and below the long term average would still occur.

There would be no short term or long term irretrievable or irreversible adverse effects to wildlife populations.

## Cultural Resources

Cultural evidence is meaningful largely in relation to the degree that the site from which it comes has remained undisturbed. An artifact or feature might be important, but the association or context in which it was found might be much more significant. When these sites are disturbed, the opportunity for serious analysis by the archaeologist or historian is lost, as is important information about the past.

Alternative B calls for the implementation of grazing and land treatments, including the development of grazing systems, construction of range facilities and water developments and use of mechanical treatments such as plowing, seeding and scalping. Because significant adverse effects occur to a cultural site when it is altered by ground disturbance, mechanical treatments and water developments could cause adverse impacts to this resource.

On the other hand, forage allocation, grazing treatments, chemical treatments and range facilities each improve ground cover, but do not cause significant surface disturbance. Thus, they should actually improve preservation of cultural resources by improving the conditions which maintain the integrity of a site. No data exists which allows quantification of such a benefit, however. On the basis of existing cultural resource inventory data for the study area, a density of 1.5 to 5 cultural sites per 640 acres can be determined. (This is an estimate of low statistical reliability given in Chapter 3.) Therefore, under Alternative B, between 200 and 1,000 sites could be adversely affected.

Because a Programmatic Memorandum of Agreement (PMOA) is in effect between BLM and the Advisory Council on Historic Preservation (Appendix 4.3), specific procedures would be followed to identify actual effects of range projects on cultural sites and to avoid or to mitigate those impacts. Therefore, adverse impacts from range developments will generally be avoided through project design. In a few instances, recovery of cultural resource data by scientific excavation may be necessary to mitigate destruction of cultural information

### Conclusion

Inventory and assessment of cultural resources directly affected by range developments would provide immediate gains in scientific knowledge of the area and a data base for long term gains. Long term loss of scientific data could occur if an inventory did not discover a site that was subsequently destroyed during construction. However, the loss is not expected to be great. Any cultural site inadvertently destroyed would be irretrievably and irreversibly lost.

## Social and Economic Impacts

### Ranch Economic Impacts

There would be short-term decreases and long-term increases and decreases in net ranch incomes in this alternative.

Appendix 4.6 displays negative short-term impacts to operations with AMP allotments by representative size category. In addition, there would be an additional temporary loss in grazing as mechanical treatments are applied or grazing systems implemented. These losses could represent a significant impact to a few individual operators when their land is out of production. A total of 418 operations show a decrease and 190 would have no change. Of those operators that would receive decreases, the average decrease is 27 percent in public AUMs or about six percent in total ranch AUMs. The average decrease in net annual income for the representative livestock categories ranged from $588 in small livestock/large cash crop operations to $3,434 on very large livestock/small cash crop operations. The average percentage decreases in net annual income range from 1.2 to 11.9 percent. The representative operations with more cash crops generally have smaller percentage decreases in net income. Total short-term decreases in annual income to all affected ranch operations would be $589,306. This is 6 percent of the current livestock income for all ranches in the study.

Appendices 4.7 and 4.8 display impacts in the long term to operations by representative size category. One hundred and seventy-six operations show an increase, 335 show a decrease, and 97 show no change in the long term. For those operations that would receive an increase, the average increase is 13 percent in public AUMs and about 3 percent total ranch AUMs. Those operations would sustain an average increase in net annual income of $517. The average increase in net annual income for the representative livestock categories ranges from $165 on very large livestock/small cash crop operations to $885 on medium livestock/medium cash crop operations. The average percentage increases in net annual income range from 0.3 to 6.5 percent. The smaller representative operations generally have larger percentage increases in income.

For those 335 operations that would receive decreases, the average decrease is 20 percent in public AUMs and 5 percent in total ranch AUMs. These operations would sustain an average decrease in net annual income of $1,437. The average decrease in net annual income ranges from $535 on very large livestock/large cash crop to $3,158 on very large livestock/small cash crop operations. The average percentage decreases in net annual income range from 0.5 to 12.0 percent. The smaller representative operations have larger percentage decreases in net income.

Total increases in annual income to all affected ranch operations would be $90,938 and total decreases $481,485. This is a net decrease of $390,547, four percent of the current livestock income for all ranches in the study.

Total permit values would decrease by $4,866,000 in the short term and $3,264,000 in the long term. The long-term figure is a 13 percent decrease over the present total. Those ranchers who have an increase in permit value would benefit from an increase in borrowing capacity and in ranch sale value. Those with decreases in permit value would have the decreases in borrowing capacity and ranch sale value.

The decrease in ranch employment would be the full time equivalent of about 28 (8%) employees in the short term and 23 (6%) in the long term.

### Recreation/Wildlife Related Economic Impacts

There are no quantifiable impacts on game populations under this alternative. As such, there are no quantifiable changes in hunter use, expenditures, nor economic impacts.

### Social Impacts

Social impacts to the ranching community which might result from this alternative would be negative, as some ranchers would be scheduled for loss of AUMs to watershed and wildlife enhancement. While some ranchers would be faced with having to alter their present management patterns to accommodate a change in season of use, other ranchers who are highly dependent on public lands and who could not afford to keep cattle on base properties or to purchase hay to compensate for the loss of public forage, may suffer some economic impacts. If their economic stability were sufficiently threatened, it could force their families into lower levels of consumption and increase their anxiety about the future. These social impacts are, by their nature, difficult to quantify.

Many ranchers might also perceive a change in season of use as unnecessary government interference in grazing patterns which they feel have worked well for generations to the benefit of both cattle and wildlife. The majority of ranchers interviewed consider livestock grazing to be the best and most productive use of the public lands, one which they feel is conducive to multiple use. The majority of ranchers interviewed also felt removal of cattle from public lands for the protection of wildlife was unnecessary. Their experience shows that wildlife generally prefer to feed on private lands and they believe this is unlikely to change in the immediate future regardless of any policy changes by the BLM. Consequently, this alternative could have a predominately negative effect on the ranching community's perceptions of the BLM, possibly threatening the good working relationship that currently exists between the groups.

This alternative could also result in increased conflicts between hunters and ranchers, if ranchers reacted by closing off private lands to hunting.

The social well-being of approximately 418 ranch families would be negatively affected in the short term. In the long term, the social well being of approximately 176 families would be positively impacted, while 335 families would be negatively impacted.

Impacts to conservation and recreation would be beneficial under this alternative as viewed by concerned groups. Enhanced viewing and hunting experiences would accompany increases in wildlife numbers, especially in the short term. Protection of riparian areas and upland game bird nesting and strutting grounds through deferred grazing and mechanical treatments and protection of crucial winter habitat for the benefit of wildlife would also meet needs as seen by groups concerned with preserving wildlife and their habitat for intrinsic reasons. The amount of fencing planned may not be considered sufficient by some groups, however. Plans to minimize control of prairie dog towns and to fence off several proposed fishery reservoirs should also increase recreational and viewing opportunities on public lands.

#### *Conclusions*

Many ranchers in the area would be unaffected directly by this alternative. However, impacts resulting to some ranchers from loss of AUMs to watershed and wildlife enhancement might include possible loss of opportunity for income gain and a feeling of weakened control over the future. In addition, many ranchers interviewed indicated that implementation of an alternative emphasizing the protection of wildlife over the protection of the ranching industry could create feelings of resentment toward the BLM that might threaten future relations between the groups.

Impacts to wildlife and recreation groups should be beneficial, especially in the short term, as wildlife numbers are projected to increase due to improved vegetative productivity on watershed and wintering areas. Preservation of prairie dog towns and fishing reservoirs would also result in increased hunting and viewing experiences on public lands in the area.

### Regional Economic Impacts

Appendix 4.9 shows the annual impact on output, earnings and employment of changes in livestock sales, range development construction, recreational expenditures and government employment. Impacts are shown in both the short and long term.

In the short term, the largest effect on earnings would be increased construction. There would also be a decrease in agricultural earnings. The only effect in the long term would be decreased livestock sales. Decreased earnings from this activity would amount to $231,000 annually and gross output resulting from livestock sales would decrease $943,000 annually.

Total employment would increase by 106 people in the short term and decrease by 23 persons in the long term. Total earnings would increase by $1,358,000 annually in the short term and decrease by $231,000 annually in the long term.

*Conclusions*

In the short term income would decrease by $589,306 annually on 418 operations (or 6.0 percent of the current livestock income for all ranches in the study). Permit values would show a net decrease of 19 percent and ranch employment an increase of eight percent. These short term decreases would be moderately significant.

In the long term income would increase by $90,938 annually on 176 operations and decrease by $481,435 annually on 335 operations in this alternative. The net change in ranch income would be a decrease of $390,547 annually (or four percent of the current livestock income for all ranches in the study). Permit values would show a net decrease of 13 percent and ranch employment a decrease of six percent. These long term increases and decreases are considered to be insignificant. These long term decreases would be moderately significant.

The changes in study area earnings (+0.8 percent in the short term and -0.1 percent in the long term) and employment (-0.6 percent in the short term, 0.1 percent in the long term) would be moderately significant.

There would be an irretrievable loss of ranch income in this alternative. A few ranches might be unable to stay in business in their present form. There would be no irreversible loss.

## ALTERNATIVE C: NO GRAZING

No livestock would be permitted to graze on public lands in this alternative. The analysis of this alternative provides a basis of comparison for the environmental, social and economic consequences of the other alternatives.

All current grazing privileges would be revoked. All agreements with cooperative state grazing districts would be affected as well. No range improvements would be built or maintained unless the improvements were considered necessary for resource programs such as watershed or wildlife. Salvage rights would be granted or cash reimbursement made to ranchers who had contributed to range improvement facilities.

This program would eliminate the current permitted livestock use of 253,085 AUMs. In the "worst-case" situation, BLM would require fencing of public lands to prevent livestock trespass. There would be 7,400 miles of fences necessary for this undertaking, costing the private landowners $16.9 million according to 1980 cost estimates.

### Watershed

Elimination of livestock grazing on public lands would bring about an immediate increase in vegetation residue and carryover, providing more cover and litter to the soil surface. An increase in soil productivity and development would occur, with an increase in levels of organic matter and increased soil moisture. In the long term, sediment yield would decrease 54% and water yield would decrease 30% (Table 4-3). Both would be significant decreases.

Water quality on public land would improve with the elimination of livestock grazing. Increased vegetation production on floodplain and riparian zones would result in lowered runoff and erosion. Reduced runoff would lower fecal bacteria, suspended sediment and nutrient loading of water sources. Increased riparian vegetation would improve stream channel stability and reduce erosion of stream banks and channels (Smeins 1975).

Prairie dog populations would be treated the same as in Alternative B. Noxious weeds will be treated as needed to protect private lands and crucial wildlife habitat.

TABLE 4.3
SUMMARY OF WATERSHED IMPACTS BY TREATMENTS AND FACILITIES
ALTERNATIVE C

| Element | Sediment Yield (acre-feet/year) |  | Water Yield (acre-feet/year) |  | Water Quality | Consumptive Water Use by Livestock (ac-ft/year) |  |
|---|---|---|---|---|---|---|---|
|  | Initial | Long Term | Initial | Long Term |  | Initial | Long Term |
| Grazing Treatments | NA | NA | NA | NA | 0 |  |  |
| Mechanical Land Treatments on 127,929 acres | NA | NA | NA | NA | 0 |  |  |
| Range Facilities | 0 | I | 0 | I | 0 |  |  |
| Water Developments | 0 | I | 0 | I | 0 |  |  |
| Chemical Treatments |  |  |  |  |  |  |  |
| Noxious Weeds | 15 | 2 | 549 | 178 | + |  |  |
| Prairie Dogs | 9 | 10 | 230 | 245 | — |  |  |
| Non-AMPs and Unalloted | 1,133 | 521 | 59,291 | 41,826 | 0 |  |  |
| Total for Existing and Proposed AMPs | 1,157 | 533 | 60,070 | 42,249 | + | 2,794 | 0 |

I — Insignificant
NA— Not applicable in this alternative
+ — Increase in Water Quality
0 — No change in Water Quality
— — Decrease in Water Quality

SOURCE: BLM 1980-1981

Consumptive water use by livestock would be reduced from 2,794 acre-feet/year initially to zero in the implementation period. In the long term this quantity of water would be available to downstream users. Existing reservoirs would be maintained for uses other than for livestock.

### Conclusions

The net effect of the elimination of livestock grazing on public lands would be a decrease in sediment yield of 54% in the long term (Table 4-3). Water yield would decrease by 30% in the long term, a significant decrease. Water quality would improve significantly with reduced levels of fecal bacteria, suspended sediment and nutrients contained in runoff water. The 2,794 acre-feet/year of water that would normally be consumed by livestock would be available to other users, including wildlife, recreation and downstream users.

There would be no irretrievable or irreversible loss to soil and water resources in this alternative.

## Vegetation

Eliminating livestock grazing would bring about a rapid improvement in plant vigor and vegetation cover. Ecological range condition would improve in the long term as succession to ecological climax progressed with the more hardy grazing-resistant plant species giving way to less hardy "climax" species.

Some range sites would improve very slowly, but eventually would approach climax. Only those ranges in excellent condition now would not show marked improvement and even these would improve within that class.

Without the stimulation of grazing, plant vigor and production would level off and stagnate on most soils in the long term.

About 7,400 miles of fences would be needed to exclude livestock from public lands. Impacts common to construction and maintenance of fences to include construction of roads and trails would result. Livestock trailing along the fences could impact private and state lands, assuming ranchers continue to graze livestock on their lands.

Noxious weed and prairie dog control would be the same discussed in the watershed section. With limited control of prairie dogs, there would be a decrease in vegetation condition and production on or near prairie dog towns.

### Conclusions

Ecological range condition of most range lands would improve while those occupied by prairie dogs would remain at or decline to poor. Plant vigor and vegetation cover would increase on areas not occupied by prairie dogs, but would then level off and stagnate. Fences required to exclude grazing would affect vegetation slightly.

The loss of vegetation production from the lower ecological range conditions brought about by the potential expansion of prairie dogs would be irretrievable but not irreversible.

## Livestock

The elimination of livestock grazing on public land would cause a loss of any livestock production on ranches associated with public land grazing. This would amount to a loss of 253,085 AUMs.

The loss of grazing would reduce animal productivity on private and state lands, too, as livestock would have to trail to make use of the scattered private and state holdings. Livestock would be excluded from water, forage and shade areas on public lands and would trail along fence lines.

### Conclusions

This alternative would eliminate stock use of the public lands and a loss of 100% of all grazing on ranches associated with the public lands. Livestock stress on non-public lands would increase and result in reduced productivity.

There would be a total irretrievable loss of permitted AUMs in this alternative but this would not be irreversible.

## Wildlife

### Big Game (Deer, Antelope and Bighorn Sheep)

In the short term, absence of grazing would result in an increase of forage and cover.

In the long term with the absence of livestock grazing, vegetation would trend toward a climax vegetation which is less desirable habitat for deer and antelope. Without cattle, periodic vegetative manipulations by fire, mechanical, chemical and/or other types of treatments could become necessary as a substitute for maintaining the suitability of some areas for big game. Therefore, cattle are important in maintaining on some soil subgroups the vegetation used by big game.

Riparian and woody draw habitats would improve in the absence of livestock grazing. However, vegetative manipulation by other than livestock grazing would be periodically necessary, as discussed above.

Without the need for division fencing on public lands, removal of such fences could improve big game movements. However, increased fencing to accommodate more intensive livestock management on private lands could offset the benefits of removing pasture fences on public lands. If BLM-administered lands were less scattered, perhaps actions on adjacent private lands would have less influence on public lands.

Without the availability of public lands for grazing, private landowners would guard the rangeland resources on their deeded land, possibly to the exclusion of big game and hunters.

Reintroduction of bighorn sheep into the Terry Badlands would be evaluated and implemented, if feasible. There is no present allocation of forage to livestock and that reservation for wildlife would be maintained as long as introduction efforts produce viable results. Such a program would be conducted in cooperation with the Montana Fish, Wildlife and Parks Department.

### Upland Game Birds (Sharp-Tailed Grouse, Sage Grouse, Ring-Necked Pheasant)

With no livestock grazing, residual vegetation on all allotments would provide cover and food for additional upland game birds. As discussed in the previous section, maintaining vegetative succession in the more productive disclimax stages might have to be accomplished by fire, mechanical, chemical and/or treatments other than livestock grazing.

### Turkeys

Management for wild turkeys would be provided through maintenance and improvement of habitats as the need and/or opportunities are identified. Treatments to accomplish this would include prescribed burning, plantings and mechanical methods of vegetation manipulation.

### Waterfowl

In the absence of livestock, shoreline vegetation would improve, providing good nesting cover for waterfowl. Production and use would increase because of improved water clarity and additional food and cover on existing reservoirs. The absence of livestock grazing would also provide additional food and cover in streamside riparian habitats.

Livestock reservoirs with high to moderate waterfowl use potential would be maintained. Additional wetlands for waterfowl would be developed in moderate to high potential use areas as funding and maintenance capabilities allow.

Habitat improvements would have to be provided through artificial nesting structures and through vegetation manipulation by methods other than livestock grazing.

### Nongame

Sufficient food and cover would be available to nongame on all public lands with the absence of livestock grazing. Range management fences around all public lands would provide additional perching sites for nongame birds. Nongame wildlife species would benefit from improvements in riparian and woody draw habitats. Vegetation manipulation by fire, mechanical and/or chemical methods might be necessary to maintain a disclimax which is a more biologically productive successional stage.

Shore birds would increase with the improvement of present shoreline vegetation.

Prairie dog controls would be necessary under this alternative to protect private lands and crucial wildlife habitats affected by expansions of existing towns. A study in Kansas (Snell and Hlavachick, 1980) demonstrated that grazing period modifications resulted in reductions of town size and prairie dog numbers on mid- to tall-grass prairie.

In the EIS area, similar livestock grazing adjustments would not likely produce similar results because of the short-grass species. However, the release of vegetation that would result from the absence of livestock grazing could be expected to limit or allow only slight increases in the acreage of prairie dog towns.

### Fisheries

Livestock reservoirs with suitable fisheries potential would be maintained. Reservoir sites with a good potential for fisheries (e.g., Ten-Mile Creek) would be developed for that potential.

### Conclusions

All wildlife habitats would improve dramatically in the stort-term. In the long term, certain resultant successional changes (i.e., reversion of shrub ranges back to grasses) may not provide optimum big game forage production.

In the short term wildlife numbers would increase. In the long term, overall wildlife numbers would average higher than in Alternative A but may not average any higher than numbers anticipated an Alternative B. Cycle fluctuations above and below the long term average will still occur.

There would be no short-term or long-term irretrievable or irreversible adverse impacts to wildlife populations.

## Cultural Resources

Cultural evidence is meaningful largely in relation to the degree that the site from which it comes has remained undisturbed. An artifact or feature might be important, but the association or context in which it was found might be much more significant. When these sites are disturbed, the opportunity for serious analysis by the archaeologist or historian is lost, as is important information about our past.

The elimination of livestock grazing on public lands would reduce natural destruction of some cultural sites by erosion, because of improved watershed and ecological range condition. There would be no threat to cultural properties from the construction of water developments and mechanical treatments.

### Conclusions

There would be no adverse effects for cultural resources, but any cultural sites inadvertently destroyed would be irretrievably and irreversibly lost.

## Social and Economic Impacts

### Ranch Economic Impact

In this alternative all grazing on public lands would be eliminated in the short and long term on the 608 affected operations (Appendix 3.9). The average operation is 20 percent dependent on public grazing for its total requirement. For 89 operators (15 percent), this loss of public AUMs means a loss of more than 40 percent of their total ranch grazing. The loss for these operators would be greater than the 7 to 46 percent decreases as shown on the representative ranches. Total decreases in net annual income to all affected ranch operations would be approximately $3,221,668, a decrease of 36 percent from the current livestock total or 24 percent of livestock and farm income.

Elimination of federal grazing would reduce permit values for the 608 affected ranches by the full amount of their current value of $24,614,800. These decreases in permit value would have a detrimental effect on ranchers borrowing capacity and the sale value of affected ranches. For ranches that are heavily dependent on public AUMs, the overall reduction in ranch value could be considerably more than the $100 per AUM because elimination of federal grazing could virtually destroy the ranch as an economic unit.

Reduction in hired ranch employment that would be caused by total elimination of federal grazing permits is estimated to be the full time equivalent of 303 workers. This would be an 83 percent reduction from the current level of employment on the 608 operations. However, loss of jobs could be somewhat less than expected. Many operators would continue to employ the same number of workers because they could not reduce employees in small increments as AUMs were reduced.

### Recreation/Wildlife Related Economic Impacts

There are no quantifiable impacts on game populations under this alternative. As such, there are no quantifiable changes in hunter use, expenditures, nor economic impact.

### Social Impacts

Impacts resulting from this alternative would be significant and adverse in both the short and long terms with 100% of the area permit or lease holders affected by complete loss of BLM grazing privileges. Running reduced herds on base properties, purchasing hay, or simply taking a cut in income are considered to be the only feasible options available to ranchers to compensate for loss of public forage as additional private pasture to buy or lease in the area appears to be limited.

Impacts from loss of access to public grazing lands would be most adverse to small operators and to people just starting out in the ranching business, as many of them are barely managing to keep pace with inflation and rising interest costs as it is. For many of them, reduction in personal income and an accompanying drop in their overall sense of security could be expected to result. With one or two years of bad weather, negative impacts from loss of public forage would, of course, be magnified.

Although BLM regulations do not recognize the right to treat grazing permits as real property, bankers and realtors consider the permits to have value. One impact to ranchers, therefore, from loss of public AUMs would be the devaluation of the ranch property. That loss could result in added frustration for area operators in obtaining loans in the future. Consequently, opportunities for economic gain and thus opportunities for enhancement of social well being would be foregone.

Income reduction could also force operators and their families to seek off-ranch employment. For those ranchers who are advancing in age or who live 40 to 50 miles from the nearest town, however, the prospects of competing in a larger job market would be dim.

If a rancher could not afford to purchase hay or to reduce herd sizes and still maintain a viable operation, he might eventually have to quit the livestock business. Besides losing the business, he and his family would also suffer many intangible losses, such as loss of the opportunity to live a preferred lifestyle, loss of ancestral ties to the lands and possibly the breakup of extended families and close circles of friends.

For those ranchers with very limited dependence on federal lands, the loss of access to public land would likely create more of an inconvenience than it would a financial hardship. About one-third of the ranchers interviewed thought they might have to cut back herd numbers, but indicated the financial reverberations would likely be manageable. However, because of the dispersed pattern in which parcels of public land occur throughout their private holdings, these ranchers anticipated having to deal with the frustration of seeing their own holdings cut in half or broken up by fences, meaning some alteration of traditional management patterns would have to be made.

The expense of fencing public lands to keep cattle from trespassing would fall on the ranchers in the area. Material and labor costs could be prohibitive for some operators, especially those with numerous scattered parcels of public land.

Even though some ranchers could expect to suffer only limited impacts from loss of public forage, they would still likely sympathize with ranchers who they suspected would suffer more adverse impacts. Under this alternative, it could be expected that wholesale resentment toward BLM policies would grow and likely persist into the foreseeable future, eroding the good working relationship that presently exists. All ranchers interviewed expressed strong feelings toward traditional land uses in the area and would likely perceive loss of access to federal lands as increased government interference in the ranching industry and a real threat to their way of life. Being given sole responsibility for building and maintaining fences to close off access to public lands would also likely create feelings of hostility, as ranchers would be faced with the burden of carrying the costs of a program from which they were receiving no benefits.

Adoption of this alternative might also result in increased conflicts between hunters and ranchers as ranchers might react by closing their private land to hunting.

The social well-being of approximately 608 ranch families would be negatively affected by implementation of this alternative.

Wildlife groups that have expressed interest in public rangelands managed by the BLM have emphasized their commitment to multiple use of the public lands, with livestock considered a valid component of that multiple use. This alternative, therefore, could likely not meet the approval of either wildlife groups or recreationists. However, members of these groups would be in a position to experience beneficial impacts in the short term with increases in wildlife and upland game bird numbers, providing enhanced hunting and viewing experiences for the public. Protection of a viable population of prairie dogs for public use and to provide habitat for associated wildlife species would also meet the approval of conservation groups. In the longer term, however, it is expected that wildlife numbers would decrease, resulting in negative impacts to all groups concerned with preservation of wildlife on the public rangelands.

*Conclusions*

Social impacts resulting from complete loss of BLM grazing privileges in the resource area are, by their nature, difficult to quantify, and would vary from rancher to rancher, based on a ranch's present dependence on public lands. To some ranchers, loss of access to public land would pose little more than an inconvenience, forcing many of them to alter present management patterns. For many ranchers, loss of BLM grazing privileges could mean reductions in personal income and thus a lowering of their present standard of living. For some small operations and those highly dependent on public lands, loss of the use of public lands could result in a number of them being forced to sell out. In this event, loss of many important non-monetary aspects of the ranching lifestyle would also occur.

Erosion of the current good working relationship with BLM and increased resistance to recreational use of private lands would likely result.

Impacts to wildlife and recreational groups would be positive in the short term, as wildlife numbers increased with the initial removal of livestock from the public rangeland, allowing for increased hunting and viewing experiences.

These impacts would be reversed in the long term, however, as wildlife numbers would be expected to decline in the area.

**Regional Economic Impacts**

Appendix 4.11 shows the annual impact on output, earnings and employment of changes in livestock sales, range development, construction, recreationist expenditures and government employment. In the short and long term the greatest impact would be from decreases generated by a loss in livestock sales. These changes would result in a loss of $4,758,788 annually in earnings and 303 in employment.

Total employment would have a net decrease of 60 people in the short term and 303 people in the long term. Total earnings would decrease by $501,000 annually in the short term and $3,009,000 annually in the long term.

*Conclusions*

In the short and long term income would decrease on 608 operations in this alternative. The decrease in net ranch income would be 36 percent of the current total. Permit values would decrease by 100 percent and ranch employment by 83 percent. These impacts are considered to be highly significant.

The overall impact on the attitudes of ranching oriented residents would be extremely negative. Recreationists and environmentalists would be expected to hold more moderate views.

The short and long term direct and indirect decreases of 0.3 to 1.7 percent in study area earnings and employment would be considered moderately significant. The decreases in employment would be very severe locally.

## ALTERNATIVE D: NO ACTION

The current range program would be "frozen" under this alternative. The 30 existing AMPs would continue on 227,776 acres, but no new AMPs would be implemented on the remaining 951,001 acres (747 allotments). No new range developments (e.g., reservoirs, fences, pipelines) would be constructed even in support of present AMPs. No changes in current levels of permitted livestock use would be allowed.

Initial and long term vegetation allocations would be the same: 253,085 AUMs for livestock, 759,255 AUMs for nonconsumptive and wildlife uses. No additional costs would be incurred as no new improvements or land treatments would be implemented.

All future options in range management would be foregone under this alternative. There would be no opportunity to correct erosion problems, increase or decrease livestock numbers, change kinds of livestock, adjust seasons-of-use, or improve range management. Little improvement would be expected on those AMPs where 50 percent of the allotment is in less than good condition.

The analysis shows future conditions in the area likely to occur as a result of continuing present rangeland trends.

### Watershed

Without the option to make changes or adjustments in grazing treatments, stocking rates and seasons of use would result in a deterioration of watershed condition and water quality in the long term. Without the chance to change stocking rates, abuse or overgrazing of vegetation would decrease vegetation cover and cause accelerated erosion. Continuation of early season use without periodic rest or deferment would reduce vegetation cover through compaction of soils and would increase runoff and erosion in the long term. Accelerated erosion would decrease soil fertility and productivity, further reducing management options. The loss of the ability to make management changes in livestock grazing would result in moderately significant increases in sediment and water yields. Sediment yield would increase 15% in the long term and water yield would increase 12% (Table 4-4). Downstream users would benefit from water yield increases, but increases in sediment and water yield would decrease water quality from increased amounts of suspended sediment, nutrients and fecal bacteria in surface waters and increasing sediment loading of reservoirs and stream channels. Part of the increase in sediment and water yields would come from increases in the spread of noxious weeds and prairie dogs. Grazing pressure would intensify on noninfested areas. In the long term noxious weeds and prairie dogs would spread to cover a total of 14,000 acres, providing little, if any, desirable watershed cover.

Lack of new water sources would result in continued concentration and heavy use of vegetation by livestock near reservoirs and other water sources. Areas more distant from water would receive light use. Consumptive water use by livestock would remain at the current level of 2,794 acre-feet/year.

**Conclusions**

Without the ability to make modifications to grazing treatments, there would be moderately significant increases in sediment and water yields (Table 4-4). Sediment and water yields would increase with the spread of noxious weeds and prairie dogs. Sediment yield would increase by 15% and water yield would increase by 12% in the long term. Water quality would be reduced significantly in the long term due to increased sediment and water yields.

Consumptive use of water by livestock would remain at the current quantity of 2,794 acre-feet/year in the long term.

The loss of soil in this alternative due to erosion would be irretrievable but not irreversible. There would be no irretrievable or irreversible loss of water resources.

### Vegetation

The current allocations and seasons of use would continue on allotments where early spring use is contributing to unsatisfactory resource conditions. Adverse impacts of early spring use would not be reduced by rest and deferment grazing treatments. This would result in a continuance of present unsatisfactory conditions and probably result in a downward trend in the long term, especially in floodplains, riparian zones and other livestock concentration areas.

The current grazing systems would be maintained. No revisions could be made to correct problems. Current trends would be expected to continue in the short term, but might decline in the long term, since there is no opportunity to make changes in response to problems. Many concentration areas would continue to be heavily grazed season long.

Sites suitable for mechanical treatments and soils responsive to grazing treatments would continue to produce far below their potential. Leafy spurge and other noxious weeds would spread and reduce range condition on the infested acres.

No prairie dog control measures would be taken on public lands. Livestock forage production would decrease in the long term due to the increase in prairie dogs.

Maintenance of current allocations and seasons of use without control of prairie dogs and noxious weeds would result in reduced forage supplies, overuse and deteriorated range condition.

**Conclusions**

This alternative would result in general maintenance of present trends and ecological range conditions in the short term and a significant decline in the long term. Since allocations to livestock would remain unchanged, a continuing decline in condition and productivity would result and the decline would be accelerated by increasing prairie dog populations.

The loss of vegetation production by lower ecological range conditions and the potential expansion of prairie dogs would be irretrievable but not irreversible.

### TABLE 4.4
### SUMMARY OF WATERSHED IMPACTS BY TREATMENTS AND FACILITIES
### ALTERNATIVE D

| Element | Sediment Yield (acre-feet/year) | | Water Yield (acre-feet/year) | | Water Quality | Consumptive Water Use by Livestock (ac-ft/year) | |
|---|---|---|---|---|---|---|---|
| | Initial | Long Term | Initial | Long Term | | Initial | Long Term |
| Grazing Treatments | 219 | 368 | 11,508 | 17,930 | 0 | | |
| Mechanical Land Treatments on 127,929 acres | NA | NA | NA | NA | 0 | | |
| Range Facilities | NA | NA | NA | NA | 0 | | |
| Water Developments | NA | NA | NA | NA | 0 | | |
| Chemical Treatments | | | | | | | |
| Noxious Weeds | 15 | 30 | 549 | 1,098 | — | | |
| Prairie Dogs | 9 | 16 | 230 | 375 | — | | |
| Non-AMPs and Unalloted | 913 | 913 | 47,869 | 47,869 | 0 | | |
| Total for Existing and Proposed AMPs | 1,156 | 1,327 | 60,156 | 67,272 | — | 2,794 | 2,794 |

I — Insignificant
NA— Not applicable in this alternative
+ — Increase in Water Quality
0 — No change in Water Quality
— — Decrease in Water Quality

SOURCE: BLM 1980-1981

## Livestock

Current allocations would not change in the short or long term in this alternative, but forage supplies would be expected to decrease in the long term. Livestock production would remain fairly static in the short term. Long term reductions in forage supplies (see "Vegetation" above) would result in heavier grazing on some allotments if current use is continued. The loss of forage would probably be drastic on some allotments and minor on others. For example, those allotments which are stocked at lighter levels and have good range condition would be little affected, while an allotment with less good range would lose production. Those allotments with noxious weeds or prairie dogs would be especially hard hit.

There would be no change in seasons of use, grazing or land treatments in response to depleted forage supplies. Poor livestock distribution would continue where it presently exists and would contribute to lower animal production, especially under heavy grazing.

### Conclusions

Production would remain static during the short term but would decline in the long term because of the spread of noxious weeds and prairie dogs and because of the lack of improved grazing management.

There would be no irretrievable or irreversible loss of livestock resources in this alternative.

## Wildlife

Without the opportunities for vegetation manipulations, (e.g., additional water facilities, adjustments in grazing systems) some species of wildlife would be adversely affected. Livestock concentrations on crucial wildlife habitat would be significantly competitive with wildlife, particularly during the spring and winter seasons.

### Big Game (Deer and Antelope)

Natural fluctuations of deer and antelope populations would occur, but there would be no long-term, significant increase or balance attained.

Conflicts between livestock and big game would remain and would increase in the long term.

Concentrated livestock use could not be corrected without range improvements to give better distributions of water and to subdivide pastures. Livestock concentrations on crucial winter ranges could be significantly competitive for big game forage.

Because of the freeze on developments, livestock impacts would remain concentrated on areas with water and highest vegetative production. In turn, some prime wildlife habitats (e.g., riparian and woody draw, sagebrush) could be heavily impacted by livestock concentrations.

### Upland Game Birds (Sharp-Tailed Grouse, Sage Grouse, Ring-Necked Pheasant)

In the long term, no additional vegetation would be available for upland game birds from season long grazing treatments. Existing AMP allotments totaling 227,776 acres (19% of the public land in the EIS area), however, would help provide cover and food to sustain upland game bird populations.

### Turkeys

Turkey populations inhabiting river bottom habitats would be adversely affected.

Without the capability to modify grazing systems through the development of improvement projects (i.e., water development and fencing) destructive use of riparian areas by livestock could not be prevented.

### Waterfowl

No additional residual vegetation would be available to increase waterfowl production because of season long grazing. Even though the vegetative character of existing reservoirs would not be improved, some production of ducks and geese would still occur.

### Nongame

No additional residual vegetation would be available to nongame. Some of the existing AMP allotments would provide residual cover because of completed development and continued management as prescribed in the AMP.

No additional cover or food would be available to shore birds on reservoir shorelines because of season long grazing.

Without prairie dog controls, expansion of towns would occur, particularly in areas where livestock would be concentrated. The potential increase in prairie dog towns would provide additional habitat for the burrowing owl, mountain plover and other species associated with prairie dogs. Potential habitat for the black-footed ferret would be increased. The potential expansion of the prairie dog towns, however, would reduce the yearlong food and cover of many other wildlife species not associated with prairie dog towns.

### Fisheries

In the long term, vegetation removal around fisheries reservoirs would continue. Some of the existing reservoirs would be lost as viable fisheries because of accelerated sedimentation. No new reservoirs would be built in this alternative, decreasing the overall number of viable fisheries reservoirs in the long term.

### Conclusions

Wildlife habitats would continue as they are currently trending. Without the capabilities to manage livestock use (water dispersion, fencing, etc.), livestock concentrations would locally deteriorate habitats. Riparian areas, hardwood draws and reservoir sites would probably be the most severely affected because of their water elements.

Locally, wildlife numbers would be significantly reduced; overall, average population levels of wildlife would be moderately reduced.

Without the capability to effect management changes, these trends would be both irretrievable and irreversible.

## Cultural Resources

Cultural evidence is meaningful largely in relation to the degree that the site from which it comes has remained undisturbed. An artifact or feature might be important but the association or context in which it was found might be much more significant. When these sites are disturbed, the opportunity for serious analysis by the archaeologist or historian is lost as is important information about the past.

The inability to adjust grazing treatments and plan new range developments would result in long term accelerated soil erosion. The conditions which maintain the integrity of many cultural sites would therefore deteriorate.

### Conclusions

The integrity of many cultural resources would deteriorate in the long term and any cultural sites inadvertently destroyed would be irretrievably and irreversibly lost.

## Social and Ecomomic Impacts

### Ranch Economic Impacts

In this alternative the present number of public AUMs would be authorized in the future, so at least "on paper," there would be no impacts. Range condition on public lands would deteriorate in the long term in many areas and, therefore, the real amount and quality of forage available to livestock would decrease.

The nature and extent of impacts cannot be projected because the BLM would not place additional controls on livestock grazing in this alternative.

There would probably not be any real impact on permit values because ranch operators would continue to show on paper the same number of AUMs authorized in the future as now. In some cases, however, the authorized amount of livestock forage would not be available. There probably would be some real impact on hired ranch employment, but this cannot be estimated because the BLM would not force any ranch operators to reduce the size of their livestock herds through grazing reductions.

### Recreation/Wildlife Related Economic Impacts

There are no quantifiable impacts on game populations under this alternative. As such, there are no quantifiable changes in hunter use, expenditures, nor economic impact.

### Social Impacts

Many ranchers who were interviewed anticipated that a no action alternative would eventually produce very negative impacts to their operations. It was expected that long-term deterioration of the public range due to lack of range improvements would eventually result, meaning less opportunity for income gain and a lowered standard of living for many ranchers in the area.

Difficulties in getting needed range improvements in the past has been very frustrating for some operators who were interviewed. Continued absence of new improvements, primarily water developments, and lack of controls on prairie dogs and weeds, would be interpreted by many respondents both as the loss of opportunity to improve operations in the future, adjusting for dry years, and as a threat to adjoining private lands. Ranchers interviewed overall do not consider a no action alternative to be good range management policy for livestock or wildlife and would likely grow to resent selection of this alternative if range conditions began to deteriorate in the future.

A primary concern of many wildlife and conservation groups is the rehabilitation and protection of public rangelands for the benefit of wildlife. A no action alternative likely would not meet the approval of most conservationists, since it would provide no extraordinary measures for protection of riparian areas and would not plan for any new AMPs. Wildlife numbers could be expected to decline in the long term if range conditions began to deteriorate, resulting in diminished hunting and viewing experiences on public lands.

#### *Conclusions*

Impacts to the ranching community would be adverse, particularly to those ranchers who are highly dependent on public lands, because of the continued absence of range improvements. Lack of controls on prairie dogs on public lands could also threaten adjoining private lands. The feelings of frustration that many ranchers have experienced in their attempts to get improvements and developments on their allotments would increase.

Wildlife numbers would be expected to decline in the long term, if range and watershed conditions deteriorated. This would result in negative impacts to those groups and individuals wanting to see wildlife preserved for intrinsic as well as consumptive uses.

### Regional Economic Impacts

There would be no grazing adjustments in this alternative and therefore no quantified changes in expenditures, earnings and employment. In the long term deteriorating range conditions could have a real dollar impact on ranch income and therefore on the regional economy.

#### *Conclusions*

No changes in ranch income and employment can be quantified in this alternative. However, reductions in both are likely in the long term as forage production decreases. Therefore, long term reductions in income are a definite possibility.

There would be no quantifiable changes in expenditures so there would be no change in direct and indirect earnings and employment in the study area. There would also be no quantifiable changes in livestock numbers. The predicted long term deterioration of the range might, however, negatively affect study area earnings, employment and livestock numbers.

There would be no recognized irretrievable or irreversible loss in this alternative.

# CHAPTER 5

# CONSULTATION AND COORDINATION

The Big Dry Vegetative Allocation Draft Environmental Impact Statement was prepared by specialists from the BLM's Miles City District Office with assistance from BLM's Montana State Office. Disciplines and skills used to develop this EIS were: vegetation and rangeland use, animal husbandry, recreation, climate, sociology, economics, geology, hydrology, soils, cultural resources, wildlife, fisheries, graphics, editing, printing, public affairs and typing. Writing of the EIS began in June 1981 following a complex planning and data gathering process. The process included inventories of resources, public participation, coordination with other agencies and a planning effort. Consultation and coordination with agencies, organizations and individuals occurred throughout this process.

## PUBLIC INVOLVEMENT AND CONSULTATION DURING DEVELOPMENT OF THE DRAFT EIS

An intense public participation process was conducted during the development of this EIS. An analysis document, a sampling of public opinion by interviews of people in the Big Dry Resource Area communities, a program to draw issues from the public and a notice in the "Federal Register" were all used to elicit public views on the EIS. This process also drew useful comments from other agencies.

The major portion of the public participation process was identifying issues which the public wanted considered in this EIS. This procedure consisted of the mass mailing of an information brochure, letter and return mailer asking for issues people felt should be considered in the Big Dry EIS. A summary of these reponses was provided in another brochure mailed to the original recipients.

Included with the first brochure was a schedule for public meetings held in Terry and Baker, Montana. The meetings were used to explain the EIS process, gather additional views and inform people of how the issues would be used. From this procedure, an alternative was designated the "preferred" alternative, namely, the Continued Development for Optimum Range Utilization.

As can be seen, the public's role was vital in the development of this EIS.

The Montana State Historical Preservation Officer (SHPO) was consulted and commented on this EIS. SHPO along with the Advisory Council on Historic Preservation, will have an opportunity to review the draft EIS.

Informal consultation with the U.S. Fish and Wildlife Service regarding threatened and endangered species also took place during the preparation of this EIS. Region 7 personnel of the Montana Department of Fish, Wildlife and Parks informally reviewed draft sections on wildlife and indicated that their comments were properly depicted in the EIS.

## OTHER AGENCIES AND ORGANIZATIONS CONSULTED

The Big Dry EIS team consulted and/or received comments from the following during the preparation of the draft EIS:

### Federal Agencies

Soil Conservation Service
Bureau of Indian Affairs
Fish and Wildlife Service
Geological Survey
National Weather Bureau

### State Agencies and Organizations

Montana Agricultural Experiment Station
Montana Cooperative Extension Service
Montana Department of Fish, Wildlife and Parks
Montana Bureau of Mines and Geology
Montana Historical Society

### County Commissioners and Planning Boards

Custer County
Dawson County
Fallon County
Garfield County
McCone County
Prairie County
Richland County
Rosebud County
Wibaux County

### Special Interest Groups

Montana Stockgrowers Association
East Custer Cooperative State Grazing District (CSGD)
Red Butte CSGD
Prairie County CSGD

Further comments are expected from public hearings scheduled for the spring of 1982. Copies of the draft EIS will be available for public review at BLM Offices in Billings and Miles City and at public libraries in communities in the Big Dry area.

## COMMENTS REQUESTED

Comments on the draft EIS have been requested from the following agencies, organizations and interest groups:

### Federal Agencies

Advisory Council on Historic Preservation
Soil Conservation Service

Department of Defense
  U.S. Army Corps of Engineers
Department of Commerce
Department of the Interior
  Bureau of Indian Affairs
  Bureau of Mines
  Fish and Wildlife Service
  Geological Survey
  Bureau of Reclamation
Environmental Protection Agency

## Congressional Offices

Office of Congressman Ron Marlenee
Office of Congressman Pat Williams
Office of Senator Max Baucus
Office of Senator John Melcher

## State Agencies

Montana Association of State Grazing Districts
Montana Bureau of Mines & Geology
Montana Department of Community Affairs
Montana Cooperative Extension Service
Montana Department of Fish, Wildlife, and Parks
Montana Department of Health and Environmental Sciences, Water Quality Bureau
Montana Department of Natural Resources and Conservation
Montana Department of State Lands
Montana Governor's Office
Montana State Historic Preservation Office
Eastern Montana College
Montana State University
Old West Regional Commission
University of Montana

## County Commissioners and Planning Boards

Carter County
Custer County
Dawson County
Fallon County
Garfield County
McCone County
Prairie County
Richland County
Rosebud County
Wibaux County

## Other Organizations

Audubon Society
Circle Rifle Club
Custer Rod & Gun Club
Defenders of Wildlife
Farm Bureau
Friends of the Earth
Izaak Walton League
Lower Yellowstone Outdoors Association
McCone Agriculture Protective Organization
Montana Chamber of Commerce
Montana Farmers Union
Montana Pork Producers Assn.
Montana Public Lands Council
Montana Snowmobile Association
Montana Stockgrowers Association
Montana Woolgrowers Association
National Council of Public Land Users
Natural Resources Defense Council
Northern Plains Resource Council
Sierra Club
Society for Range Management
Wibaux Area Council
Wilderness Society
Wildlife Management Institute
Wildlife Society, Montana Chapter

## Individuals

James Morgan (Plaintiff in Natural Resources Defense Council, Inc., et al. vs. Rogers C. B. Morton, et al.)

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# APPENDIX 1.1: AGENCY RESPONSIBILITIES IN THE BIG DRY EIS AREA

The following agencies share regulatory or reviewing responsibility in the Big Dry EIS Area with BLM:

**National Advisory Council on Historic Preservation (NACHP), and Montana State Historic Preservation Officer (SHPO)**

Section 106 of the National Historic Preservation Act, and the National Historic Preservation Act Amendment of 1980 and Section 2b of Executive Order 11593 require that BLM consult with NACHP and SHPO, as outlined in 36 CFR 800 on actions that might affect cultural values on public lands.

**Soil Conservation Service (SCS)**

The SCS (U.S. Department of Agriculture) is primarily concerned with the stabilization of the soil and watershed resources and increasing the productivity of private land. To improve production on private land, the SCS has developed farm and ranch plan programs with such soil conservation projects as detention reservoirs and seeding. In ranch plan development, grazing systems are designed to use the private range effectively. In an integrated program, other rangelands such as public land must be considered. If the private ranch plan development should incorporate other uses on public land, conflicts would arise, particularly if use of public lands would be adjusted. SCS assistance on private lands is accomplished primarily through five soil and water conservation districts in or near the EIS area.

Through the Agricultural Stabilization and Conservation Service (ASCS), the Soil Conservation Service provides assistance to landowners who want to improve their private rangelands. The ASCS provides cost-sharing on fences, water developments, and erosion control; the SCS provides technical support in planning, surveying, designing, and laying out each project.

**U.S. Geological Survey (USGS)**

USGS (U.S. Department of the Interior) has jurisdiction over operational development of oil and gas deposits on public lands after BLM issues the lease.

**Bureau of Reclamation**

The Bureau of Reclamation has jurisdiction primarily along the Yellowstone and Missouri Rivers or other major water ways. Many lands along these major water ways were originally withdrawn from settlement, location and entry and placed under control of the Bureau with the enactment and passage of the Reclamation Act of June 17, 1902. This particular act established a system of water development projects for the irrigation of arid lands and for other purposes such as homesteading of public lands, if the land could be reclaimed through irrigation.

The Act allowed individuals to obtain patent to lands which had been withdrawn if certain conditions were adhered to and if the individual could prove up on his claim to validate a particular farm unit. Most landowners were able to obtain patent to their lands, however, the withdrawal which originally set aside public lands under the above act has never been formally revoked and remains a part of the permanent land record.

**Cooperative State Grazing Districts**

Organized under the 1933 Montana Grass Conservation Act, these nonprofit cooperative associations of livestock operators are empowered to lease or buy grazing lands, to develop and manage district controlled lands and to allocate grazing preferences among members and nonmembers. BLM has cooperative agreement with the following cooperative State Grazing Districts in the Big Dry Resource Area:

Prairie County
East Custer
Red Buttes

**Environmental Protection Agency (EPA)**

EPA is authorized under Section 309 of the Clean Air Act to review and evaluate environmental impact statements. Under Section 208, Federal Water Pollution Control Act, this agency also monitors water pollution control planning through the Montana Department of Health and Environmental Sciences with which BLM coordinates land use planning.

**Fish and Wildlife Service**

Fish and Wildlife Service (U.S. Department of the Interior) enforces the Endangered Species Act, manages migratory waterfowl, and monitors the aerial hunting of predators.

**Montana Department of Fish, Wildlife and Parks**

Fish, Wildlife and Parks is responsible for fisheries, big and small game species, and outdoor recreation. BLM has an agreement with Fish, Wildlife and Parks to maintain, manage, and improve wildlife resources in Montana.

**Private Grazing Associations**

These associations graze public lands in common, easing the management of allotments where there would otherwise be numerous permittees:

Cedar Creek Grazing Assoc.
Sage Hen Grazing Assoc.

**Montana Department of State Lands**

AMPs often contain varying amounts of state land. Approximately 6 percent of the area is composed of state land, the largest part of which is managed by the Montana Department of State Lands. State land, which often is intermingled with BLM land, is generally leased to individual livestock operators or cooperative state grazing districts on a long term basis. Coordination with the Montana Department of State Lands is continuing, as the department becomes increasingly involved in management planning and the development of range improvements.

## APPENDICES

# APPENDIX 2.1: PLANNING SYSTEM INTERRELATIONSHIPS

| MFP Step 1 Recommendations for Range/Livestock | MFP Step 1 Recommendations for Other Resources That Conflict with Range/Livestock | MFP Step 1 Conflicts and Multiple Use Considerations | MFP Step 2 Recommendation | Resource Trade-Offs |
|---|---|---|---|---|
| RM 1.1<br>Consider 63 allotments for development and implementation of intensive grazing management through AMPs. Increase or decrease in vegetation allocation will be based on the long-term trend indicated in the SVIM range studies. A good or better range condition will be the management goal.<br>RM 1.2<br>The area's 30 existing AMPs will be continued and periodically monitored to ensure allotments are maintained or improved to provide for good or better range conditions.<br>RM 1.3<br>The remaining 684 allotments are composed of scattered tracts of public lands with a relatively low acreage ration of public lands to private lands. These areas do not warrant development of AMPs. No development will be planned. | WATERSHED<br>WS 1.1, 1.2<br>Monitoring the effects of livestock use and the construction of range-related projects. Maintain good and excellent watershed condition while improving areas in poor and fair condition. Establish acceptable vegetative cover values by range site and implement them at the activity planning level. Surface disturbance from construction and maintenance of management facilities should not be allowed during wet periods to protect watershed values. | Where the effects of livestock grazing is deemed detrimental to watershed values, deferment, rotation or exclusion of livestock may be necessary. | Continue to monitor the effects of livestock grazing while improving range conditions to good or better. Surface disturbance for construction or maintenance on R/W's that involve significant public surface should not be allowed during wet periods. | Trade-offs are not determined at this time. |
| | WS 1.4<br>Evaluate existing roads and trails as to their use and condition. If a need cannot be shown, they should be closed.<br>Discourage development of roads and trails unless a positive need can be shown. Confine off-road vehicles to established roads and trails. | The use of pickups, trailers and farming/ranching equipment is needed to do routine livestock related chores such as fence building and repairs and monitoring of livestock on public lands. This use often requires off-road travel. | Discourage development of roads and trails unless a positive need can be shown. Confine off-road vehicle use to established roads and trails in erosion susceptible areas. Close roads and trails in areas that are not needed. | Vehicles would not be allowed off established roads and trails, in areas of critical or severe conditions such as heavily eroded areas, newly reseeded areas or other areas in need of special management. |
| | WS 1.8<br>Examine poor and fair condition range using order I soil surveys and proceed to rehabilitate these areas with appropriate land treatments. Any increase in vegetation resulting from treatments are to be allocated for watershed purposes. No grazing should be allowed on treated areas for at least two growing seasons to allow vegetation establishment. | Deferment of rangelands for rehabilitation will require partial or total exclusion of livestock until vegetation can be established. This might include reductions, deferment or total exclusion of livestock grazing on poor or fair condition range until range is in good or better condition. | Complete order I soil surveys on problem areas and proceed with the recommended treatment to rehabilitate the areas. Any vegetation increase resulting from the treatments would be allocated 50% to watershed | Grazing will not be allowed on rehabilitated ranges for 2 growing seasons to allow vegetation establishment. |

| MFP Step 1 Recommendations for Range/Livestock | MFP Step 1 Recommendations for Other Resources That Conflict with Range/Livestock | MFP Step 1 Conflicts and Multiple Use Considerations | MFP Step 2 Recommendation | Resource Trade-Offs |
|---|---|---|---|---|
| | WS 2.1<br>Avoid grazing in severe wind and water erosion areas during April, May and June each year. Soil cover values are to be included in objectives of AMPs. Avoid reservoir, fence and other project construction during periods of wet weather to lessen impact severity on watershed values. | Grazing schedules necessitate that livestock graze public lands during April, May and June. | Where deemed necessary to graze livestock on severe wind and water erosion areas during the months of April, May and June, proper grazing management should be used in conjunction with soils, watershed and plant phenology capabilities. These should include rest, deferment or alternating use. Salting, construction of reservoirs, pipelines, and other range related projects in severe wind and water erosion areas should be discouraged. | In areas where critical or severe conditions exist, grazing will have to be more effectively managed, reduced or eliminated. |
| | WS 3.1<br>Discourage livestock use of riparian zones to reduce active streambank erosion, high suspended sediment concentrations and occasional high fecal coliform concentrations. Prevent grazing on floodplain and riparian areas during the wet periods of April, May and June. Accomplish by deferment or rest, fencing of floodplains i.e. treating them as separate grazing units and grazing them within the period of July 1 to March 31. | Either more intensive livestock management or fencing will be necessary on the identified areas in order to curb this problem. Season of use must be changed to allow vegetation to maintain plant growth and vigor during April, May and June. | Where deemed necessary to graze livestock on floodplain areas of April, May and June, proper grazing management should be used in conjunction with soil, watershed and plant phenology capabilities and requirements. Salting, construction of reservoirs, pipelines and other range related projects should be discouraged on floodplains and riparian areas. | Activity plans and AMPs must reflect proper grazing management systems during April, May and June. These may include deferment, reduction in season, rest rotation or other grazing systems to protect streambank stability, increase plant vigor and productivity and reduce sediments. If deemed necessary, riparian areas may be fenced to exclude livestock during critical periods. |
| | WS 3.4<br>Range improvements (other than reservoirs) generally will not be located in riparian habitats or floodplains. Salting would not be allowed in reservoir spillways. Fences will be constructed or designed to prevent the debris from collecting and closing channels. | The presence of water projects like reservoirs concentrates livestock on creek bottoms and riparian areas. These areas receive the heaviest vegetation use. | Same as WS 3.4 | Wells may be located on terraces or ridgetops away from riparian areas. Pipelines will be located off riparian areas. Where projects are located on riparian habitat and floodplain areas, rehabilitation of the area is needed. Salting should be away from water and out of reservoir spillways. |

| MFP Step 1 Recommendations for Range/Livestock | MFP Step 1 Recommendations for Other Resources That Conflict with Range/Livestock | MFP Step 1 Conflicts and Multiple Use Considerations | MFP Step 2 Recommendation | Resource Trade-Offs |
|---|---|---|---|---|
| | WS 3.7<br>Eliminate all activities (including grazing) in the Lost Boy Creek Watershed (Prairie Planning Unit) that remove riparian vegetation and disturb the soil because this watershed yields very high suspended sediment and high flash peak flows. Special protective measures are needed if wilderness status is not obtained. | Natural erosion in this watershed is very severe. Grazing could only increase sediment yield on erosion while decreasing in water quality. | Allow livestock to graze Lost Boy Creek, but under a grazing system that does not deteriorate the vegetative cover. This system must include considerations for soil cover, compaction and plant phenology. | Livestock may be deferred from using the Lost Boy Creek drainage in early spring each year. |
| | WS 3.8<br>In the South Pine controlled ground water area, surface water (i.e. springs and reservoirs) will be the primary source of water for BLM water developments. All flowing wells will be controlled and use of ground water from a formation above the Fox Hills Formation will not be permitted. | The drilling of wells in the area is regulated by MDNRC in Helena, Mt. Use of aquifers in this area may result in decrease of water levels. | Same as WS 3.8 | All flowing wells should be capped or controlled to prevent waste of Fox Hills aquifer water. |
| | WS 5.1, 5.2, 5.3<br>Monitor soil, climate, air surface and ground water on all AMPs to ensure protection of watershed values. This monitoring will include continuation of inventory on soils, water and air. Monitoring is needed to assure compliance with Montana's 208 Water Quality Program plans, court-mandated EISs, and SCS guidelines for livestock grazing. | Where livestock grazing is deemed harmful to soil or vegetation, protective measures of reduced grazing may be enacted. | Same as 5.1, 5.2, 5.3 | No trade-offs are identified at this time. |
| | Wildlife<br>WL 2.1<br>Acquire by purchase or easement, and/or exchange, lands along Ten Mile Creek to benefit wildlife and fisheries. | This proposed dam and reservoir (T11N, R51E, Sec. 34) is located on allotments 2815 and 2810. Grazing may be excluded or reduced. | Analyze important wildlife areas along with opportunities and capabilities of these areas. If they meet a demand, land acquisition programs should be initiated. | AUMs between livestock and wildlife may have to be adjusted on effected allotments to accommodate the Ten Mile Creek project if deemed important to wildlife. |
| | WL. 2.2, 2.3<br>Create wetlands by constructing water-control dikes, ponds, canals, level ditch, waterways, etc. for wildlife and waterfowl. | Range conflicts consist of creating a possible hazard to livestock if bog-type conditions occur. | Create wetlands habitat at suitable sites to enhance the prairie biome diversity. | Wetland areas may have to be fenced to exclude livestock. These areas may also lead to a small loss of livestock due to animals becoming bogged down. |

| MFP Step 1 Recommendations for Range/Livestock | MFP Step 1 Recommendations for Other Resources That Conflict with Range/Livestock | MFP Step 1 Conflicts and Multiple Use Considerations | MFP Step 2 Recommendation | Resource Trade-Offs |
|---|---|---|---|---|
|  | WL 2.5<br>In cooperation with the Montana Dept. of Fish, Wildlife, and Parks, introduce bighorn sheep into the Terry Badlands area if it can be determined the area will support a viable population. No determinations of potential population size has been made, therefore vegetation allocation needs are not known. No new fencing of an extensive nature should be allowed. Maintain cattle as the only class of permitted livestock. Authorize no increases in livestock forage until bighorn use patterns and forage needs are established. | Approximately six sections of public lands are currently unallocated to livestock near the Terry Scenic Overlook. Since both bighorn sheep and cattle are primarily grazers, competition for forage would occur if sheep were to move off the allocated portions of public lands. This competition would be minimized as bighorn sheep prefer and need the steep slope areas for security and escape cover. Cattle use of these areas is minimal. Bighorn sheep would probably not stay within the six-section area, but would expand to fill the available habitat. Possible mix of domestic sheep with bighorn sheep might introduce the lung worm into the wildlife population. Bighorn sheep may contract some diseases (lung flukes) from domestic sheep. Allotments 2772, 2797, 2750 and 2747 will be affected. | Initiate cooperative evaluations with MT Dept. of Fish, Wildlife, and Parks and introduce bighorn into Terry Badlands, if introduction is deemed biologically practical. Maintain variable herd size which will not cause a decline in the quality and quantity of available habitat. Use control measures as needed to meet this end. | No conflicts are anticipated in the area as most of the area is unsuitable for livestock grazing. |
|  | WL 3.3, 3.4<br>Plant aquatic, emergent and riparian vegetation along streambanks and waterways. With construction of new reservoirs and repair of existing reservoirs (with the exception of fisheries reservoirs), build goose nesting islands and/or install waterfowl nesting platforms or boxes as appropriate. No reservoirs are identified for this at present. Fencing may be necessary to accomplish this. This will establish food, water and cover for wildlife. | Conflicts exist if livestock is excluded from possible water sources. | Shallow ends of existing reservoirs would be fenced to protect planted vegetation. On new projects deemed suitable for fisheries, develop a livestock water source below the dam outside the fenced area. Require construction of nesting islands in new reservoirs and when repairing existing reservoirs. Fencing or rest rotation grazing system with a full one year rest on one pasture would provide residual nesting cover. |  |
|  | WL 3.9<br>Plant food and cover crops on sites managed intensively by provision of Habitat Management Plans (HMPs) for terrestrial wildlife populations. Plantings would be on a cooperative-share basis with irrigation if possible. | Range management is concerned about possible loss of productive haylands and AUMs by exclusion of grazing by livestock. | Same as WL 3.9 plus utilize irrigation and cooperative share crop farming where possible. | Livestock would be excluded from areas. |

| MFP Step 1 Recommendations for Range/Livestock | MFP Step 1 Recommendations for Other Resources That Conflict with Range/Livestock | MFP Step 1 Conflicts and Multiple Use Considerations | MFP Step 2 Recommendation | Resource Trade-Offs |
|---|---|---|---|---|
| | WL 4.4<br>In areas of critical wildlife habitat, restrict or limit occupancy for surface disturbances. This will include the construction of reservoirs, wells, fences and other livestock-related projects. Examples include grouse breeding areas, deer, grouse and antelope wintering areas and raptor concentration areas. | Reservoirs, fences, pipelines, waterspreaders and other projects are needed as part of the AMP process. | In known crucial wildlife habitat, restrict or limit occupancy for surface disturbance purposes. These restrictions may be in the form of zone protection or time-of-year limitations. | Livestock may be deferred during part of the year on areas of seasonal use by wildlife. Management facilities may have to be moved to less desirable locations (i.e., fences, wells, etc.) which still serve the same purpose. |
| | WL 4.6<br>Protect and maintain the black-tailed prairie dog ecosystem as an integral part of the prairie environment. | Range management conflicts would possibly occur with the allocation of vegetation and restrictions on range improvements on prairie dog towns. | (1) Allow surface disturbance in dog towns only when the town has been certified as black-footed ferret (endangered species) free.<br>(2) Where watershed has not been harmed and range is not seriously depleted, prairie dog towns should be maintained.<br>(3) Encourage the use of selective non-toxic control measures. Use chemical control only when the town has been certified free of black-footed ferrets. | Black-tailed prairie dogs may have to be poisoned periodically to prevent excessive expansion of towns to prevent damage of watershed and range. |
| | WL 4.8<br>Allocate 100% of shoreline vegetation within 100 feet of existing and future fisheries reservoirs to wildlife needs. Fence reservoirs to assure livestock exclusion. | Fencing of reservoirs would deny livestock access to water, plus there would be a small loss of AUMs. | As funds and manpower permit, fence existing fisheries reservoirs and leave water gaps for livestock to gain access. Develop water sources below dams. | AUMs will be lost to livestock where fenced. |
| | WL 4.10<br>Maximize production and improve the vigor of trees and shrub species in hardwood draws and riparian zones. These areas are identified in the MFP. | Protection of hardwood draws and riparian areas may conflict with livestock management systems. | In areas of good condition, maintain present management, where deterioration of the woody vegetation cover is occurring, institute grazing systems which will allow for regrowth to occur. | Grazing systems must be implemented to manage woody vegetation. Fencing may be necessary to exclude livestock from deteriorated areas. |
| | WL 4.11<br>Allocate sufficient vegetation to support identified mule deer, white-tailed deer and antelope numbers on spring, summer and fall range. | There is a potential conflict with livestock for vegetation allocation. | Same as WL 4.11 | Potential loss of livestock AUMs to wildlife. |

| MFP Step 1 Recommendations for Range/Livestock | MFP Step 1 Recommendations for Other Resources That Conflict with Range/Livestock | MFP Step 1 Conflicts and Multiple Use Considerations | MFP Step 2 Recommendation | Resource Trade-Offs |
|---|---|---|---|---|
|  | WL 4.12<br>Allocate 100% of all vegetation on deer, antelope and sage grouse winter range to wildlife in the MFP. | There is a potential conflict with livestock for vegetation allocation. | Continue present allocation of vegetation. If overuse occurs, institute a grazing system which would maximize shrub production. Minimize winter grazing. | Potential loss of livestock AUMs to cattle. Potential change of season of use. |
|  | WL 4.13<br>Allocate 4 to 6 inches of residual growth of mid and tall grasses on a yearlong basis. This will provide nesting and escape cover for ground-nesting birds. | Potential conflict of allocation of vegetation and AUMs between wildlife and livestock. | Manage to obtain or maintain good ecological range condition. Where possible, institute rotation grazing systems which will allow for residual vegetation. | Potential loss of AUMs from livestock. |
|  | WL 4.14<br>Locate and build fences to minimize restriction of wildlife movements. To the extent possible, locate fences in such a manner that they do not bisect crucial big game animal habitat or movement lanes. | Potential conflict with livestock management through distribution patterns. | Same as 4.14 with the addition that fences will be evaluated on a case-by-case basis. | This will allow for livestock management and minimize wildlife conflicts. |
|  | WL 4.17<br>Prohibit the use of chemical toxicants and mechanical treatments immediately adjacent to streams or ponds. | May conflict with chemical and mechanical treatments proposed by range management to eliminate problem areas. | Adhere to watershed guidelines for setbacks of mechanical treatments. Assure that the Clean Water Act (PL 92-517) and USDI guidelines are adhered to where herbicides and pesticides are used. | Setbacks are needed where mechanical and pesticide treatments are used on rangelands. |
|  | WL 4.18<br>Prohibit the indiscriminate spraying of noxious weed species on public lands. | Many weedy species, while beneficial to wildlife, may not provide forage for livestock. | Control weedy species on public lands (after analyzing their positive/negative values) using the most applicable and least damaging methods. By state law, some weed control is mandatory. | Without the spraying of noxious weeds on public lands, the weed problem will likely increase leading to a loss of rangelands and AUMs for livestock. |
|  | WL 4.19<br>Prohibit the use of chlorinated hydrocarbons (DDT, Endrin, Dieldrin, etc.) to be used on insect species on public lands. | Uncontrolled grassphopper and cutworm infestations can severely deplete livestock forage. | BLM must comply with EPA regulations. | Possible continued insect problems on rangelands. |

| MFP Step 1 Recommendations for Range/Livestock | MFP Step 1 Recommendations for Other Resources That Conflict with Range/Livestock | MFP Step 1 Conflicts and Multiple Use Considerations | MFP Step 2 Recommendation | Resource Trade-Offs |
|---|---|---|---|---|
| | Cultural Resource Management<br>CRM 1.7<br>Study selected sites through testing, data recovery and analysis to better understand the nature of cultural resources for management purposes. | Small areas will be taken out of grazing for short periods of time (less than three areas). | Study of selected cultural sites will continue. Small areas (100 sq. meters to 1000 sq. meters) will be taken out of production for short periods of time (rarely exceeding three months). | Trade-offs are expected to be very minimal. |
| | CRM 2.1, 2.4, 2.5, 2.6<br>Complete a class III cultural resources inventory on all livestock, development and management projects before the project may be approved. Nominate to the National Register those cultural resources which appear to qualify for placement on it. | If conflicts arise between the location of a significant cultural site and a proposed surface disturbing activity, the planned activity (e.g. range project construction) may be delayed or abandoned because of the presence of cultural material. | Continue on-the-ground search for cultural resources. Examine all livestock-related projects for cultural resource values. | Depending upon the significance of the cultural resources, a few livestock-related facilities may be abandoned or held up pending recording or salvage of cultural resources. |
| | Minerals<br>M 2.1, 3.2, 4.1<br>Allow oil, gas and geothermal exploration and development on public lands. Explore and mine sand and gravel. | Exploration and development of oil and gas would temporarily diminish available AUMs for livestock. Possible water quality degradation for livestock. | Restrict activity up to 500 feet from reservoirs or intermittent streams and up to 1000 feet on perennial streams. Restrict oil and gas activities on rangeland steeper than 30%. Rehabilitate areas disturbed by seismic activities. | AUMs will be lost to seismic activity. Development would result in permanent loss of AUMs under roads, drill pads and possible lower water quality for livestock. |
| | Forestry<br>F 3.1, 3.2, 3.3<br>Protect existing conifer and hardwood stands from significant depletion. | Conifer and hardwood growth suppresses vegetation needed for livestock (i.e. , grasses, forbs and shrubs). Removal of tree species may be recommended by range management as a tool to increase forage and AUMs on timber types. | Preserve timber in riparian areas while managing for maximum forest products. | Fire, chaining, herbicides may be used to increase forage for livestock. This must be on a case-by-case basis at the activity plan level. |
| | F 5.1<br>Restrict land use (i.e., grazing) on areas of seedling establishment. This is to allow new seedlings to become established without damage from trampling. | Livestock need shade and timber areas during hot or stormy weather. Fencing seedling establishment areas would reduce available forage for livestock. | Same as F 5.1 | Livestock may be deferred from timbered areas until seeldings become established. Forestry/livestock conflicts and trade-offs are expected to be minimal. |

# APPENDIX 2.2: METHODS AND RANGE DEVELOPMENTS

A. Description of Big Dry Area Soil and Vegetation Inventory (SVIM)

An extensive inventory of soils and vegetation of the Big Dry EIS area was conducted in 1979-80 using BLMs Soil and Vegetation Inventory Method (SVIM). The inventory included a total of 1.18 million acres of public land.

The objectives of the inventory were as follows:

1. To determine the ecological condition of the vegetation resource.

2. To inventory the soils of the area; to understand capabilities and potentials of the soil resource and to link vegetation to soils in order to determine the best management practices for the area.

3. To determine vegetation production, cover, trend and watershed condition in order to make appropriate allocations of vegetation.

4. To develop a base of resource information that could be added to and improved on in future years.

The inventory was conducted as follows:

1. Soil survey maps were used as a base. Published soil surveys were available for Dawson and Wibaux Counties. Copies of SCS photos with completed mapping were used for McCone, Richland and parts of Prairie and Rosebud Counties. A cooperative SCS-BLM effort mapped lands in Fallon and Custer and the remainder of Prairie County. BLM soil scientists mapped those portions of Rosebud and Garfield Counties in the survey area. The published soil surveys and the field photos were Order 2 surveys and the new surveys were Order 3. Range sites were noted on the base for each mapping unit.

2. Range condition and vegetation types were determined and assigned to a strata (each range site/condition class being called a strata) on the soils/range site maps. Helicopters were used to speed this operation as range conservationists estimated ecological range condition and mapped vegetation types while traversing the allotments slowly at altitudes of 10 to 15 feet. Observers landed periodically to check accuracy of estimates. By this method about 10,000 acres could be mapped in a day.

Two retired SCS personnel (range specialist and soil scientist) condition classed mapped the public lands in Richland, Dawson, Wibaux, Fallon, Prairie and Custer Counties in 1979. BLM soil scientists and range specialists mapped the vegetative condition of public lands in Garfield and Rosebud Counties and rechecked some of the previous years work in 1980.

About 450 transects were located on representative sites to sample all strata. The transects were assigned to the strata in the percentage that the strata occurred on the landscape (more transects were placed on the more abundant strata). An attempt was made to sample each strata at least three times, but some strata occurred very few times and were not sampled three times. Transect work was contracted and supervised by BLM range specialists and soil scientists.

Time frames did not allow the use of automatic data processing of transect data. Soils, range site, condition class and vegetation mapping were used in conjunction with SCS range site and initial stocking rate guides to determine the current and potential (potential = production at mid-good condition) grazing capacities of the allotments. The results of these calculations are shown in Appendix 2.4. The present stocking rates (Alternative A Short-Term AUMs) are the result of the current condition acreage times the SCS guide value. The potential (Alternative A Long-Term AUMs) stocking rates are the result of site acres times mid-good values in the SCS guide.

B. The following are recommended methods of management and descriptions of range developments. These are provided to further clarify the proposed alternatives and provide guidance in the development of AMPs. Treatments discussed are those recommended in the respective management framework plans (MFPs).

1. Vegetation Allocation

Initial allocations in Alternative A and both short and long-term allocations in Alternative D are based on current stocking rates. These stocking rates would be verified by actual use and utilization monitoring and transects established on the various strata. The present allocation (Alternative A-Present Situation) is: 25% of vegetation to livestock and 75% of vegetation to nonconsumptive and wildlife uses. The allocation in Alternative B would allocate all vegetation on winter range and riparian zones plus the 75% allocation made in Alternative A to nonconsumptive and wildlife uses. The remaining vegetation would be allocated to livestock. Alternative C: 100% allocation to nonconsumptive and wildlife uses. Alternative D: Same as Alternative A: frozen present allocation.

2. Riparian Zone Management

Riparian zones in the area would be managed by grazing systems, alternative water sources, or fencing which would provide: periodic rest, reduced use, and opportunity for vegetation regeneration in Alternative A. Livestock use would be prohibited in Alternative B.

George D. Lea (1979) stated that: "Grazing and quality riparian systems are interrelated; grazing and riparian systems are not mutually exclusive." Also, "Presently, BLMs riparian management on rangelands consists of (1) grazing systems, such as rest-rotation and deferred-rotation grazing, (2) protective fencing, and (3) alternative sources of Water."

3. Grazing Treatments

Grazing treatments (systems) would vary and be keyed to the allotment situation and management needs. Livestock stress would be limited by designing systems with as few pastures as necessary and reducing handling requirements. Spring pastures would be developed in allotments when necessary and possible. Grazing systems may include rest rotation, deferred rotation, deferred, seasonal, short duration, other systems, or variations or combinations of these types.

4. Mechanical Treatments

Plowing and Seeding—This treatment would be applied after less destructive and costly measures have been applied. Rejuvenation of decadent stands of tame grasses, development of spring ranges, or returning areas of tame grasses to native range would use this technique.

Scalping, Contour Furrowing, Pitting, Chiseling, and Ripping—Would be done to increase ground cover, reduce runoff, increase vigor and abundance of vegetation. These methods could be used on soil Subgroups 1, 4, 5, 7, 9, 11, 12, and 13. They would not be used on steep slopes with erodable soils. Roads and trails would be excluded, scalping, contour furrowing and pitting would not be used on areas used by sheep. Interseeding would not be done unless there was an inadequate desirable species seed source (Ryerson 1970, Valentine 1971) or a vegetative conversion was desirable.

Chaining (Cabling, Railing), Dozing, Rotobeating—Could be used on soil Subgroups 1, 4, 5, 7, 9, 11, 12, and 13. Treatments would not be done on steep slopes with erodable soils. Large blocks of sagebrush could be cleared, but scattered stands would be left as needed for deer, antelope and sage grouse winter use. Work would not be done during the grouse nesting season (Valentine 1971).

Fire—Could be used on soil Subgroups 1, 2, 4, 5, 7, 9, 10, 11, 12, and 13. Treatment would avoid steep erodable areas and resource considerations would be made during the burn plan preparation.

5. Range Facilities

Fencing would consider wildlife needs and would provide for its movement. Range improvements (except reservoirs, pits or developed springs) would be located off floodplains, riparian areas, or crucial wildlife habitat if possible. Developments would not take place on damage susceptible soils when they are saturated, generally April-June.

Oilers, salt and minerals would be located together, away from riparian zones and close enough to upland water sources to be used by livestock.

5. Water Developments

Water Sources—These include wells, springs, pits and reservoirs. There would be one water source per square mile on AMPs and one per two square miles on non-AMPs. Where livestock are excluded, tanks would be located away from the dam for watering. Topsoil would be saved to place on the dam fill. Water sources would be located carefully to protect special habitat zones.

Water Quality—The water quality of stock water and fishing reservoirs on public lands would be managed to meet the state of Montana and federal water quality standards for the designed purpose of the reservoir. Methods to improve water quality include development of AMPs, mechanical treatments and grazing treatments that reduce grazing intensities and maintain vegetation cover on watershed.

Vegetation cover promotes water infiltration, reducing overland flow that carries sediment, nutrients, fecal bacteria and other water pollutants to surface water sources.

7. Noxious Weeds

Would be controlled in Alternatives A, B and C. Tordon beads work well on leafy spurge. They can be hand spread or mechanically spread depending on conditions. Several applications may be necessary. Other methods of effective control may be developed and used. Other noxious weeds can be controlled with a variety of chemical herbicides which would be applied in compliance with specifications and regulations.

8. Prairie Dog Control

Zinc phosphide is the only pesticide presently considered for control. An accepted procedure is to prebait active holes prior to application of poison bait. One teaspoon per hole is the recommended rate of application. Baiting should be done in late summer or fall. Mechanical treatment of controlled dog towns may be necessary.

9. Monitoring

Monitoring plans would be developed to ensure that resource objectives are being met by management (Table 1-3). Benchmark or comparison sites would be established and monitored for comparison with general rangelands.

# APPENDIX 2.3: ALLOCATION COMPUTATIONS

The acreage and range condition of each range site provided the base for making projections of increased grazing capacity in response to management. The following procedures were used to establish the short and long term allocation in each alternative.

## Alternative A: Continuation of Present Management

Short Term: The present allocation was used. It was originally developed by applying proper use factors, actual use values, and the initial stocking rate guides found in SCS Technician Guides. The allocation is closely approximated by the formula: Grazing Capacity = Site Production x .25 ÷ Monthly Forage Requirement. The initial vegetation allocation was: 25% to livestock, 75% to wildlife, range land maintenance and other nonconsumptive uses.

Example:

A site with an average annual production of 1200 lbs/acre would be allocated as shown below:

$$\frac{1200 \text{ lbs}}{800 \text{ lbs}} \times .25 = \frac{300 \text{ lbs}}{800 \text{ lbs}} = .375 \text{ AUMs/acre allocated to livestock}$$

The remaining 900 lbs or 1.125 AUMs/acre were not allocated to livestock and were allocated to wildlife and nonconsumptive uses as discussed above. The high percentage of good and excellent range in the EIS area verifies the adequacy of the guides and the formula. Those areas in less than good conition are generally the result of some management problem (primarily caused by livestock distribution resulting from water, fencing, tame pasture, repeated same season grazing, etc.) which results in overuse of an area; not in an overallocation of vegetation.

Long Term: The allocation is the new grazing capacity which would result from a projected increase in range condition on less than good range and the increase in production of tame pasture (primarily crested wheatgrass) by rejuvenation or reseeding to other species.

## Alternative B: Watershed and Wildlife Enhancement

Short and long term allocations were achieved by subtracting the watershed and wildlife MFP I demands from the short and long term allocation in Alternative A.

The watershed demand was that use of areas susceptible to damage during April, May & June be restricted and total rest of riparian areas. Aums reduced are those that would be lost without a change in the current grazing use schedule.

The wildlife demand was for all vegetation on antelope, deer, and sage grouse critical winter ranges, and for all vegetation on prairie dog towns. These AUMs are in addition to the allocation made in Alternative A and are purely theoretical as all the wildlife demands have been more than met by the present allocation, with the exception of the demand for all vegetation on prairie dog towns.

## Alternative C: No Grazing

No allocation to livestock in either the short or long term.

## Alternative D: No Action

Continuation of current allocation in both the short and the long term.

# APPENDIX 2.4: ALLOTMENT SUMMARIES

EXISTING AMPS

| | | | | | | | | PUBLIC LAND RANGE CONDITION | | | | CURRENT USE | | | PUBLIC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A ST | ALTN. A LT | ALTN. B ST | ALTN. B LT | ALTN. C ST | ALTN. C LT | ALTN. D ST | ALTN. D LT |
| 2084 | 100 | 8753 | 62796 | 8413 | 340 | -- | -- | -- | 229 Y | 06/16-09/23 | 88 | 659 | 90 | 690 | 659 | 690 | 529 | 560 | 0 | 0 | 659 | 659 |
| | 101 | | | | | | | | 3 C | 03/01-02/28 | 100 | 30 | -- | 30 | 30 | 30 | 00 | 00 | 0 | 0 | 30 | 30 |
| | | | | | | | | | | TOTAL | | 689 | 90 | | | | | | | | | |
| 2549* | 50 | 9169 | 42967 | 7837 | 474 | -- | -- | 858 | 110 C | 03/01-02/28 | 100 | 1308 | -- | 2264 | 2235 | 2264 | 2114 | 2143 | 0 | 0 | 2235 | 2235 |
| 2685 | 183 | | | | | | | | 115 C | 04/01-11/30 | 100 | 927 | — | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 2235 | | | | | | | | | | |
| 2550* | 51 | 3586 | 10737 | 2593 | 729 | -- | 264 | -- | 3 H | 03/01-02/28 | 15 | 4 | 28 | 1014 | 948 | 1014 | 936 | 1002 | 0 | 0 | 948 | 948 |
| 2686 | 184 | | | | | | | | 420 C | 03/01-02/28 | 15 | 756 | 4287 | | | | | | | | | |
| | | | | | | | | | 47 C | 05/01-08/31 | 100 | 188 | | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 948 | 4315 | | | | | | | | | |
| 2568* | 69 | 3200 | 9263 | 2771 | -- | -- | -- | 429 | 65 C | 03/01-02/28 | 100 | 785 | -- | 838 | 785 | 838 | 550 | 603 | 0 | 0 | 785 | 785 |
| 2832 | 330 | 6708 | 2877 | 5838 | 690 | -- | 70 | 110 | 62 C | 03/01-02/28 | 100 | 743 | -- | 1804 | 1742 | 1804 | 1742 | 1804 | 0 | 0 | 1742 | 1742 |
| | | | | | | | | | 200 C | 05/01-06/15 | 82 | 246 | 54 | | | | | | | | | |
| | | | | | | | | | 239 C | 08/01-08/30 | 82 | 195 | 44 | | | | | | | | | |
| | | | | | | | | | 162 C | 08/01-08/30 | 81 | 132 | 30 | | | | | | | | | |
| | | | | | | | | | 250 C | 09/01-11/03 | 81 | 426 | 99 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 2527 | 227 | | | | | | | | | |
| 2727 | 224 | 6575 | 1990 | 5795 | 170 | -- | -- | 610 | 45 C | 05/01-09/30 | 94 | 212 | 14 | 212 | 212 | 212 | 186 | 186 | 0 | 0 | 212 | 212 |
| | 225 | | | | | | | | 117 C | 03/01-02/28 | 100 | 1409 | — | 1409 | 1409 | 1409 | 1234 | 1234 | 0 | 0 | 1409 | 1409 |
| | | | | | | | | | | TOTAL | | 1621 | 14 | | | | | | | | | |
| 2728 | 226 | 3747 | 2160 | 3209 | 410 | -- | 90 | 38 | 205 C | 03/15-11/14 | 63 | 1033 | 607 | 1117 | 1033 | 1117 | 933 | 1017 | 0 | 0 | 1033 | 1033 |
| 2737 | 235 | 10826 | 10282 | 9856 | 30 | -- | 40 | 900 | 247 C | 03/02-02/28 | 53 | 1574 | 1396 | 2837 | 2722 | 2837 | 1815 | 1930 | 0 | 0 | 2722 | 2822 |
| | | | | | | | | | 900 S | 03/01-02/28 | 53 | 1148 | 1018 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 2722 | 2414 | | | | | | | | | |
| 2738 | 236 | 2820 | 7009 | 2220 | 530 | -- | 70 | -- | 4 C | 03/01-02/28 | 100 | 45 | -- | 812 | 765 | 812 | 415 | 462 | 0 | 0 | 765 | 765 |
| | | | | | | | | | 140 C | 04/01-05/31 | 100 | 280 | — | | | | | | | | | |
| | | | | | | | | | 142 C | 07/01-09/15 | 100 | 355 | -- | | | | | | | | | |
| | | | | | | | | | 43 C | 05/01-08/31 | 50 | 85 | 85 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 765 | 85 | | | | | | | | | |
| 2745 | 244 | 8417 | 13383 | 7357 | 140 | -- | -- | 920 | 510 C | 03/01-02/28 | 38 | 2349 | 3771 | 2475 | 2349 | 2475 | 2233 | 2359 | 0 | 0 | 2349 | 2349 |
| 2750 | 249 | 23324 | 13277 | 21834 | -- | 610 | -- | 880 | 266 C | 03/01-02/28 | 100 | 3187 | -- | 3325 | 3187 | 3325 | 2327 | 2465 | 0 | 0 | 3187 | 3187 |
| 2752 | 251 | 3673 | 4264 | 3673 | -- | -- | -- | — | 4 C | 03/01-02/28 | 100 | 41 | — | 939 | 939 | 939 | 589 | 589 | 0 | 0 | 939 | 939 |
| | | | | | | | | | 164 C | 05/01-11/30 | 51 | 587 | 561 | | | | | | | | | |
| | | | | | | | | | 400 S | 05/01-11/30 | 51 | 286 | 274 | | | | | | | | | |
| | | | | | | | | | 7 H | 05/01-11/30 | 51 | 25 | 17 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 939 | 852 | | | | | | | | | |
| 2755 | 254 | 11787 | 8050 | 11097 | 350 | -- | 30 | 310 | 204 C | 03/01-02/28 | 100 | 2443 | -- | 2509 | 2443 | 2509 | 2354 | 2420 | 0 | 0 | 2443 | 2443 |
| 2762 | 262 | 4315 | 903 | 4315 | -- | -- | -- | -- | 160 C | 04/16-11/30 | 91 | 1093 | 108 | 1093 | 1093 | 1093 | 1071 | 1071 | 0 | 0 | 1093 | 1093 |
| 2763 | 263 | 10244 | 11422 | 10024 | -- | -- | -- | 220 | 556 C | 04/01-05/25 | 92 | 925 | 80 | 2695 | 2667 | 2695 | 2286 | 2314 | 0 | 0 | 2667 | 2667 |
| | | | | | | | | | 556 C | 05/26-08/25 | 74 | 1167 | 410 | | | | | | | | | |
| | | | | | | | | | 556 C | 08/26-11/10 | 27 | 325 | 876 | | | | | | | | | |
| | | | | | | | | | 5 H | 03/01-02/28 | 90 | 54 | 6 | | | | | | | | | |
| | | | | | | | | | 556 C | 04/01-04/07 | 90 | 113 | 13 | | | | | | | | | |
| | | | | | | | | | 556 C | 11/11-02/28 | 9 | 83 | 9 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 2667 | 1394 | | | | | | | | | |
| 2772 | 268 | 17304 | 19029 | 15944 | 990 | -- | -- | 370 | 766 C | 05/01-12/15 | 72 | 4152 | 1615 | 4152 | 4152 | 4152 | 3960 | 3960 | 0 | 0 | 4152 | 4152 |
| 2773 | 269 | 6406 | 4133 | 5006 | -- | -- | 150 | 1250 | 141 C | 03/01-02/28 | 100 | 1695 | -- | 1710 | 1695 | 1710 | 1238 | 1253 | 0 | 0 | 1695 | 1695 |
| 2774 | 270 | 6958 | 6286 | 6098 | 80 | -- | 340 | 440 | 154 C | 03/01-02/28 | 100 | 1845 | -- | 1858 | 1845 | 1858 | 438 | 451 | 0 | 0 | 1845 | 1845 |

EXISTING AMPS (cont.)

| | | | | | | | | PUBLIC LAND RANGE CONDITION | | | | CURRENT USE | | | PUBLIC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A | | ALTN. B | | ALTN. C | | ALTN. D | |
| | | | | | | | | | | | | | | | ST | LT | ST | LT | ST | LT | ST | LT |
| 2786 | 282 | 3640 | 1530 | 2360 | 600 | — | 120 | 560 | 125 C | 05/01-10/31 | 100 | 750 | -- | 1165 | 1041 | 1165 | 1041 | 1165 | 0 | 0 | 1041 | 1041 |
| | | | | | | | | | 30 C | 06/01-10/31 | 100 | 150 | — | | | | | | | | | |
| | | | | | | | | | 7 C | 06/19-09/18 | 100 | 21 | -- | | | | | | | | | |
| | | | | | | | | | 20 Y | 05/01-10/31 | 100 | 120 | -- | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 1041 | -- | | | | | | | | | |
| 2792 | 288 | 8599 | 14617 | 7649 | 950 | -- | -- | — | 142 C | 03/01-02/28 | 100 | 1703 | — | 1766 | 1703 | 1766 | 1566 | 1629 | 0 | 0 | 1703 | 1703 |
| 2793 | 289 | 4465 | 2880 | 3465 | -- | — | 420 | 580 | 150 C | 10/11-04/30 | 27 | 271 | 719 | 960 | 887 | 960 | 800 | 873 | 0 | 0 | 887 | 887 |
| | | | | | | | | | 150 C | 05/01-10/10 | 77 | 616 | 184 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 887 | 907 | | | | | | | | | |
| 2803 | 299 | 8512 | 1280 | 7572 | 770 | -- | — | 170 | 473 C | 05/01-10/31 | 88 | 2499 | 339 | 2589 | 2499 | 2589 | 2436 | 2526 | 0 | 0 | 2499 | 2499 |
| 2807 | 303 | 1520 | 1040 | 220 | 860 | -- | -- | 440 | 5 C | 03/01-02/28 | 100 | 65 | — | 581 | 450 | 581 | 424 | 555 | 0 | 0 | 450 | 450 |
| | | | | | | | | | 72 C | 04/01-09/15 | 97 | 385 | 12 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 450 | 12 | | | | | | | | | |
| 2824 | 323 | 5840 | 2679 | 4830 | 110 | -- | 40 | 860 | 141 C | 05/01-10/31 | 85 | 721 | 127 | 1623 | 1506 | 1623 | 1492 | 1609 | 0 | 0 | 1506 | 1506 |
| 2826 | 323 | | | | | | | | 119 C | 04/25-10/31 | 85 | 632 | 112 | | | | | | | | | |
| | | | | | | | | | 60 Y | 08/01-10/31 | 85 | 153 | 27 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 1506 | 266 | | | | | | | | | |
| 2828 | 326 | 3361 | 960 | 3271 | -- | -- | -- | 90 | 5 C | 03/01-02/28 | 100 | 52 | — | 764 | 752 | 764 | 695 | 707 | 0 | 0 | 752 | 752 |
| | | | | | | | | | 100 C | 04/15-11/14 | 100 | 700 | — | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 752 | | | | | | | | | | |
| 2829 | 327 | 1971 | 5524 | 81 | 850 | 00 | 150 | 890 | 252 C | 04/01/12/20 | 25 | 519 | 1557 | 707 | 519 | 707 | 519 | 707 | 0 | 0 | 519 | 519 |
| 2831 | 329 | 4213 | 2051 | 3723 | 50 | -- | 20 | 420 | 205 C | 03/01-03/31 | 27 | 56 | 151 | 1091 | 1034 | 1091 | 670 | 727 | 0 | 0 | 1034 | 1034 |
| | | | | | | | | | 204 C | 04/01-05/14 | 3 | 9 | 291 | | | | | | | | | |
| | | | | | | | | | 204 C | 05/15-09/30 | 75 | 694 | 231 | | | | | | | | | |
| | | | | | | | | | 205 C | 10/01-02/28 | 27 | 275 | 744 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 1034 | 1417 | | | | | | | | | |
| 2838 | 336 | 8837 | 4280 | 8837 | -- | -- | -- | — | 470 C | 04/20-11/20 | 63 | 2074 | 1216 | 2074 | 2074 | 2074 | 1885 | 1885 | 0 | 0 | 2074 | 2074 |
| 2861 | 356 | 5496 | 2986 | 4356 | 700 | — | 40 | 400 | 310 C | 05/15-09/14 | 100 | 1239 | -- | 1243 | 1239 | 1243 | 567 | 571 | 0 | 0 | 1239 | 1239 |
| 2873 | 363 | 9502 | 7585 | 7852 | 530 | — | 70 | 1050 | 200 C | 03/01-02/28 | 100 | 2404 | — | 2583 | 2404 | 2583 | 2354 | 2533 | 0 | 0 | 2404 | 2404 |
| 2946 | 436 | 14008 | 24732 | 13928 | 80 | -- | -- | — | 1001 Y | 05/01-10/31 | 80 | 3216 | 1201 | 3223 | 3216 | 3223 | 3020 | 3027 | 0 | 0 | 3216 | 3216 |

PROPOSED AMPS

| | | | | | | | | PUBLIC LAND RANGE CONDITION | | | | | CURRENT USE | | | | | PUBLIC | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A ST | ALTN. A LT | ALTN. B ST | ALTN. B LT | ALTN. C ST | ALTN. C LT | ALTN. D ST | ALTN. D LT |
| 2003 | 4 | 2364 | 11040 | 1664 | 280 | -- | -- | 420 | 63 | C | 03/01-02/28 | 100 | 757 | -- | 822 | 757 | 822 | 757 | 822 | 0 | 0 | 757 | 757 |
| 2098 | 116 | 1478 | 9784 | 958 | 520 | -- | -- | — | 33 | C | 04/01-11/30 | 100 | 264 | — | 311 | 264 | 311 | 243 | 290 | 0 | 0 | 264 | 264 |
| 2109 | 130 | 2920 | 9960 | 2920 | -- | -- | -- | -- | 1 | C | 03/01-02/28 | 100 | 14 | -- | 14 | 14 | 14 | 0 | 0 | 0 | 0 | 14 | 14 |
| | 131 | | | | | | | | 48 | C | 03/01-02/28 | 100 | 573 | | 573 | 573 | 573 | 468 | 468 | 0 | 0 | 573 | 573 |
| | | | | | | | | | | | TOTAL | | 587 | | | | | | | | | | |
| 2131 | 156 | 869 | 5720 | 604 | 265 | -- | -- | — | 10 | C | 03/01-02/28 | 100 | 121 | 0 | 145 | 121 | 145 | 116 | 140 | 0 | 0 | 121 | 121 |
| 2144 | 168 | 48330 | 217659 | 45550 | 2360 | 420 | -- | -- | 650 | C | 03/01-02/28 | 29 | 2259 | 5531 | 7981 | 7704 | 7981 | 7154 | 7432 | 0 | 0 | 7704 | 7704 |
| | 168 | | | | | | | | 600 | Y | 04/15-09/15 | 29 | 870 | 2130 | | | | | | | | | |
| | 169 | | | | | | | | 812 | C | 03/01-02/28 | 21 | 2057 | 7738 | | | | | | | | | |
| | 170 | | | | | | | | 787 | C | 03/01-02/28 | 8 | 764 | 8786 | | | | | | | | | |
| | 171 | | | | | | | | 1639 | C | 03/01-02/28 | 9 | 1754 | 17735 | | | | | | | | | |
| | | | | | | | | | | | TOTAL | | 7704 | 41920 | | | | | | | | | |
| 2217 | 256 | 1232 | 14704 | 232 | 1000 | — | -- | -- | 170 | S | 03/01-02/28 | 100 | 410 | | 500 | 410 | 500 | 373 | 463 | 0 | 0 | 410 | 410 |
| 2219 | 258 | 1183 | 1200 | 863 | 185 | 135 | -- | — | 19 | C | 05/01-12/31 | 100 | 152 | | 195 | 152 | 195 | 131 | 174 | 0 | 0 | 152 | 152 |
| 2223 | 262 | 6700 | 28137 | 5950 | 750 | -- | -- | -- | 355 | C | 11/01-04/30 | 30 | 640 | 1490 | 1514 | 1460 | 1514 | 1054 | 1108 | 0 | 0 | 1460 | 1460 |
| | | | | | | | | | 100 | C | 05/01-10/31 | 30 | 180 | 420 | | | | | | | | | |
| | | | | | | | | | 127 | C | 11/01-04/30 | 35 | 267 | 496 | | | | | | | | | |
| | | | | | | | | | 100 | Y | 03/01-02-28 | 35 | 315 | 585 | | | | | | | | | |
| | | | | | | | | | 144 | C | 11/01-04/30 | 6 | 52 | 814 | | | | | | | | | |
| | | | | | | | | | 1 | C | 03/01-02/28 | 100 | 6 | | | | | | | | | | |
| | | | | | | | | | | | TOTAL | | 1460 | 3805 | | | | | | | | | |
| 2225 | 264 | 520 | 4260 | 232 | 288 | -- | -- | — | 160 | C | 04/16-11/15 | 16 | 180 | 945 | 202 | 180 | 202 | 11 | 33 | 0 | 0 | 180 | 180 |
| 2239 | 280 | 4633 | 11807 | 4443 | 190 | -- | -- | -- | 359 | Y | 05/01-09/30 | 23 | 310 | 1035 | 414 | 397 | 414 | 92 | 109 | 0 | 0 | 397 | 397 |
| | | | | | | | | | 7 | C | 03/01-02/28 | 100 | 87 | — | | | | | | | | | |
| | | | | | | | | | | | TOTAL | | 397 | 1035 | | | | | | | | | |
| 2257 | 298 | 7040 | 25442 | 6260 | 780 | -- | -- | -- | 574 | C | 03/01-02/28 | 100 | 1378 | -- | 1430 | 1378 | 1430 | 1216 | 1268 | 0 | 0 | 1378 | 1378 |
| 2292 | 329 | 4773 | 21042 | 4603 | 170 | -- | -- | -- | 517 | C | 04/10-11/30 | 9 | 372 | 3761 | 390 | 372 | 390 | 52 | 70 | 0 | 0 | 372 | 372 |
| 2351 | 396 | 1161 | 2097 | 618 | 525 | 18 | -- | — | 16 | C | 03/01-02/28 | 100 | 186 | -- | 237 | 186 | 237 | 143 | 194 | 0 | 0 | 186 | 186 |
| 2377 | 425 | 8449 | 51081 | 7929 | 520 | -- | -- | -- | 87 | C | 03/01-02/28 | 100 | 1044 | -- | 1091 | 1044 | 1091 | 933 | 980 | 0 | 0 | 1044 | 1044 |
| 2514* | 15 | 4260 | 18553 | 1851 | 2339 | -- | — | 70 | 30 | C | 03/01-04/30 | 100 | 60 | -- | 1169 | 1044 | 1169 | 811 | 936 | 0 | 0 | 1044 | 1044 |
| | | | | | | | | | 230 | C | 05/01-12/15 | 36 | 620 | 1102 | | | | | | | | | |
| | | | | | | | | | 70 | C | 05/01-12/15 | 20 | 105 | 420 | | | | | | | | | |
| | | | | | | | | | 133 | C | 06/01-11/30 | 21 | 170 | 640 | | | | | | | | | |
| | | | | | | | | | 30 | C | 12/16-02/28 | 100 | 76 | -- | | | | | | | | | |
| | | | | | | | | | 8 | H | 03/01-02/28 | 14 | 13 | 80 | | | | | | | | | |
| 2675 | 173 | 79 | | 79 | -- | -- | -- | — | 6 | C | 05/01-12/15 | 36 | 16 | 28 | 16 | 16 | 16 | 16 | 16 | 0 | 0 | 16 | 16 |
| 2805 | 301 | 640 | | 640 | -- | -- | -- | -- | 62 | C | 06/01-12/01 | 21 | 80 | 301 | 80 | 80 | 80 | 74 | 74 | 0 | 0 | 80 | 80 |
| | | | | | | | | | | | TOTAL | | 1140 | 2571 | | | | | | | | | |
| 2547* | 48 | 12248 | 32954 | 7539 | 4639 | -- | 70 | -- | 713 | C | 03/01-02/28 | 26 | 2223 | 6327 | 3419 | 3120 | 3419 | 2839 | 3138 | 0 | 0 | 3120 | 3120 |
| | | | | | | | | | 18 | H | 03/01-02/28 | 26 | 57 | 162 | | | | | | | | | |
| 2684 | 182 | 4640 | 6880 | 4640 | -- | -- | -- | -- | 262 | C | 03/01-02/28 | 26 | 819 | 2331 | | | | | | | | | |
| | | | | | | | | | 7 | H | 03/01-02/28 | 26 | 21 | 60 | | | | | | | | | |
| | | | | | | | | | | | TOTAL | | 3120 | 8880 | | | | | | | | | |
| 2551 | 52 | 4799 | 9751 | 4139 | 660 | -- | — | — | 41 | C | 03/01-02/28 | 100 | 488 | -- | 1036 | 980 | 1036 | 478 | 534 | 0 | 0 | 980 | 980 |
| | | | | | | | | | 101 | C | 05/01-11/01 | 81 | 492 | 115 | | | | | | | | | |
| | | | | | | | | | | | TOTAL | | 980 | 115 | | | | | | | | | |

## PROPOSED AMPS (cont.)

| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | PUBLIC LAND RANGE CONDITION | | | % PUBLIC | CURRENT USE | | POTENTIAL AUMS | PUBLIC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | TP | # & CLS | SEASON | | PUBLIC AUMS | OTHER AUMS | | ALTN. A | | ALTN. B | | ALTN. C | | ALTN. D | |
| | | | | | | | | | | | | | | | ST | LT | ST | LT | ST | LT | ST | LT |
| 2555 | 56 | 3240 | 8142 | 1742 | 1498 | -- | -- | — | 50 C | 03/01-02/28 | 100 | 601 | — | 736 | 601 | 736 | 592 | 727 | 0 | 0 | 601 | 601 |
| 2558* | 59 | 10532 | 34405 | 9764 | 768 | -- | -- | -- | 110 Y | 06/01-11/15 | 21 | 95 | 362 | 1898 | 1865 | 1898 | 1374 | 1407 | 0 | 0 | 1865 | 1865 |
| | | | | | | | | | 990 C | 06/01-11/15 | 21 | 1143 | 4302 | | | | | | | | | |
| | | | | | | | | | 35 H | 06/01-11/15 | 21 | 41 | 152 | | | | | | | | | |
| | | | | | | | | | 49 C | 03/01-02/28 | 100 | 586 | -- | | | | | | | | | |
| 2747 | 246 | 24514 | 7091 | 20464 | 3900 | -- | 90 | 60 | 110 Y | 11/16-05/31 | 47 | 252 | 288 | 4736 | 4522 | 4736 | 3214 | 3428 | 0 | 0 | 4522 | 4522 |
| | | | | | | | | | 990 C | 11/16-05/31 | 47 | 3024 | 3411 | | | | | | | | | |
| | | | | | | | | | 35 H | 11/16-05/31 | 47 | 107 | 121 | | | | | | | | | |
| | | | | | | | | | 95 C | 03/01-02/28 | 100 | 1139 | -- | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 6387 | 8636 | | | | | | | | | |
| 2590 | 90 | 800 | 2080 | — | 704 | -- | -- | 96 | 60 C | 05/01-10/01 | 73 | 221 | 82 | 296 | 221 | 296 | 203 | 278 | 0 | 0 | 221 | 221 |
| 2591 | 91 | 1261 | 1454 | 704 | 448 | -- | -- | 109 | 75 C | 05/01-10/31 | 66 | 297 | 153 | 351 | 297 | 351 | 24 | 78 | 0 | 0 | 297 | 297 |
| 2624 | 122 | 1200 | 2820 | 58 | 680 | -- | 128 | 334 | 28 C | 03/01-02/28 | 100 | 338 | — | 441 | 338 | 441 | 141 | 244 | 0 | 0 | 338 | 338 |
| 2626 | 124 | 1651 | 5009 | 26 | 1612 | -- | 13 | -- | 10 C | 03/01-02-28 | 100 | 120 | — | 636 | 505 | 636 | 489 | 620 | 0 | 0 | 505 | 505 |
| | | | | | | | | | 162 C | 06/15-11/20 | 46 | 385 | 452 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 505 | 452 | | | | | | | | | |
| 2651 | 149 | 1230 | 3280 | 276 | 726 | -- | -- | 228 | 28 C | 03/01-02/28 | 100 | 336 | 0 | 437 | 336 | 437 | 336 | 437 | 0 | 0 | 336 | 336 |
| 2672 | 170 | 1411 | 2023 | 451 | 330 | — | -- | 630 | 105 C | 03/01-02/28 | 37 | 468 | 797 | 576 | 468 | 576 | 468 | 576 | 0 | 0 | 468 | 468 |
| 2676* | 174 | 1000 | 2074 | 316 | 32 | -- | — | 652 | 60 C | 10/25-02/28 | 100 | 247 | — | 329 | 247 | 329 | 247 | 329 | 0 | 0 | 247 | 247 |
| 2808 | 304 | 6274 | 9251 | 5014 | 590 | 210 | -- | 460 | 10 C | 03/01-02/28 | 100 | 116 | -- | 1447 | 1344 | 1447 | 1263 | 1366 | 0 | 0 | 1344 | 1344 |
| | | | | | | | | | 120 C | 06/15-10/24 | 92 | 478 | 42 | | | | | | | | | |
| | | | | | | | | | 380 C | 03/15-06/14 | 15 | 170 | 963 | | | | | | | | | |
| | | | | | | | | | 260 C | 06/15-10/24 | 52 | 580 | 535 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 1591 | 1540 | | | | | | | | | |
| 2682 | 180 | 4595 | 1330 | 3526 | 966 | -- | -- | 103 | 251 C | 06/01-11/30 | 77 | 1160 | 345 | 1221 | 1183 | 1221 | 1176 | 1214 | 0 | 0 | 1183 | 1183 |
| | | | | | | | | | 12 C | 06/15-08/30 | 77 | 23 | 7 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 1183 | 352 | | | | | | | | | |
| 2691 | 189 | 2710 | 4808 | 2550 | -- | -- | — | 160 | 221 C | 03/01-02/28 | 22 | 584 | 2071 | 610 | 590 | 610 | 550 | 570 | 0 | 0 | 590 | 590 |
| | | | | | | | | | 2 H | 03/01-02/28 | 22 | 6 | 21 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 590 | 2092 | | | | | | | | | |
| 2744 | 243 | 4551 | 2160 | 4041 | -- | -- | 250 | 260 | 23 C | 03/01-02/28 | 100 | 270 | — | 1287 | 1254 | 1287 | 1160 | 1193 | 0 | 0 | 1254 | 1254 |
| | | | | | | | | | 230 C | 07/15-10/24 | 89 | 684 | 85 | | | | | | | | | |
| | | | | | | | | | 75 C | 06/01-09/30 | 100 | 300 | -- | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 1254 | 85 | | | | | | | | | |
| 2748 | 247 | 2283 | 2400 | 2083 | -- | -- | 80 | 120 | 117 C | 03/01-03/31 | 13 | 15 | 100 | 705 | 690 | 705 | 684 | 699 | 0 | 0 | 690 | 690 |
| | | | | | | | | | 117 C | 04/01-10-15 | 78 | 594 | 168 | | | | | | | | | |
| | | | | | | | | | 117 C | 10/16-02/28 | 13 | 69 | 462 | | | | | | | | | |
| | | | | | | | | | 1 C | 03/01-02/28 | 100 | 12 | -- | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 690 | 730 | | | | | | | | | |
| 2802 | 298 | 5801 | 3127 | 5151 | 190 | -- | — | 460 | 1 C | 03/01-02/28 | 100 | 9 | -- | 1868 | 1772 | 1868 | 1732 | 1828 | 0 | 0 | 1772 | 1772 |
| | | | | | | | | | 94 C | 04/15-10/31 | 92 | 565 | 49 | | | | | | | | | |
| | | | | | | | | | 1000 S | 05/01-11/15 | 92 | 1198 | 104 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 1772 | 153 | | | | | | | | | |
| 2804* | 300 | 6006 | 10424 | 5186 | 820 | -- | -- | — | 213 C | 11011-05/30 | 50 | 746 | 746 | 1352 | 1279 | 1352 | 1235 | 1308 | 0 | 0 | 1279 | 1279 |
| | | | | | | | | | 213 C | 06/01-09/30 | 63 | 533 | 313 | | | | | | | | | |
| 2960 | 450 | 7261 | 15840 | 7261 | — | -- | -- | — | 106 C | 03/01-02/28 | 100 | 1271 | — | 1271 | 1271 | 1271 | 599 | 599 | 0 | 0 | 1271 | 1271 |
| | | | | | | | | | | TOTAL | | 2550 | 1059 | | | | | | | | | |
| 2810 | 306 | 1923 | 960 | 1763 | 160 | -- | -- | — | 45 C | 04/15-12/14 | 88 | 319 | 44 | 319 | 319 | 319 | 278 | 278 | 0 | 0 | 319 | 319 |

## PROPOSED AMPS (cont.)

| | | | | | | | | | PUBLIC LAND RANGE CONDITION | | | CURRENT USE | | | | | PUBLIC | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A | | ALTN. B | | ALTN. C | | ALTN. D | |
| | | | | | | | | | | | | | | | ST | LT | ST | LT | ST | LT | ST | LT |
| 2815 | 312 | 4716 | 4516 | 2796 | 340 | -- | -- | 1580 | 4 H | 03/01-02/28 | 37 | 17 | 29 | 1320 | 1092 | 1320 | 1065 | 1293 | 0 | 0 | 1092 | 1092 |
| | | | | | | | | | 246 C | 04/01-07/15 | 37 | 316 | 538 | | | | | | | | | |
| | | | | | | | | | 246 C | 09/01-11/15 | 37 | 225 | 383 | | | | | | | | | |
| | | | | | | | | | 246 C | 11/16-03/31 | 36 | 401 | 8130 | | | | | | | | | |
| | | | | | | | | | 246 C | 07/16-08/31 | 36 | 133 | 236 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 1092 | 1899 | | | | | | | | | |
| 2816 | 313 | 7119 | 5351 | 6439 | 390 | -- | -- | 290 | 304 C | 11/01-03/31 | 7 | 104 | 1381 | 260 | 200 | 260 | 200 | 260 | 0 | 0 | 200 | 200 |
| | | | | | | | | | 60 C | 12/01-03/31 | 7 | 17 | 225 | | | | | | | | | |
| | | | | | | | | | 60 C | 04/01-11/30 | 17 | 79 | 386 | | | | | | | | | |
| | 314 | | | | | | | | 279 C | 04/01-10/31 | 56 | 1102 | 866 | 1102 | 1102 | 1102 | 869 | 869 | 0 | 0 | 1102 | 1102 |
| | | | | | | | | | | TOTAL | | 1302 | 2858 | | | | | | | | | |
| 2817 | 315 | 2618 | 3140 | 1838 | 530 | -- | 60 | 190 | 137 C | 10/16-04/15 | 22 | 179 | 635 | 642 | 642 | 642 | 619 | 619 | 0 | 0 | 642 | 642 |
| | | | | | | | | | 137 C | 04/15-10/15 | 56 | 463 | 364 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 642 | 999 | | | | | | | | | |
| 2818 | 316 | 3523 | 1467 | 2683 | 260 | -- | -- | 580 | 112 C | 11/01-05/14 | 40 | 291 | 437 | 861 | 773 | 861 | 255 | 343 | 0 | 0 | 773 | 773 |
| | | | | | | | | | 112 C | 05/15-10/31 | 78 | 482 | 136 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 773 | 829 | | | | | | | | | |
| 2819 | 317 | 3407 | 4290 | 2827 | 380 | -- | -- | 200 | 162 C | 04/15-09/14 | 100 | 812 | -- | 871 | 812 | 871 | 812 | 871 | 0 | 0 | 812 | 812 |
| 2822 | 320 | 1421 | 1241 | 1051 | 170 | -- | 40 | 160 | 70 C | 05/01-10/11 | 100 | 377 | -- | 411 | 377 | 411 | 360 | 395 | 0 | 0 | 377 | 377 |
| 2823 | 576 | 3500 | 4340 | 2620 | 80 | 170 | -- | 630 | 216 C | 04/15-05/31 | 48 | 156 | 168 | 874 | 750 | 874 | 669 | 793 | 0 | 0 | 750 | 750 |
| | | | | | | | | | 216 C | 08/01-11/30 | 48 | 416 | 448 | | | | | | | | | |
| | | | | | | | | | 60 Y | 08/01-10/31 | 48 | 65 | 70 | | | | | | | | | |
| | | | | | | | | | 9 C | 06/01-07/31 | 48 | 9 | 9 | | | | | | | | | |
| | | | | | | | | | 18 C | 03/01-02/28 | 48 | 104 | 112 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 750 | 807 | | | | | | | | | |
| 2827 | 325 | 1811 | 1280 | 1151 | 480 | -- | 40 | 140 | 7 C | 03/01-02/28 | 100 | 86 | -- | 502 | 448 | 502 | 408 | 462 | 0 | 0 | 448 | 448 |
| | | | | | | | | | 29 C | 05/01-11/30 | 55 | 111 | 91 | | | | | | | | | |
| | | | | | | | | | 200 S | 04/01-07/10 | 100 | 131 | -- | | | | | | | | | |
| | | | | | | | | | 15 C | 04/01-11/03 | 100 | 120 | -- | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 448 | 91 | | | | | | | | | |
| 2848 | 344 | 2201 | 981 | 2121 | 80 | -- | -- | -- | 89 C | 12/16-04/30 | 36 | 144 | 256 | 492 | 492 | 492 | 475 | 475 | 0 | 0 | 492 | 492 |
| | | | | | | | | | 89 C | 05/01-10/31 | 65 | 348 | 187 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 492 | 443 | | | | | | | | | |
| 2851 | 347 | 2240 | 3313 | 2240 | -- | -- | -- | -- | 11 C | 03/01-02/28 | 100 | 134 | -- | 586 | 586 | 586 | 574 | 574 | 0 | 0 | 586 | 586 |
| | | | | | | | | | 120 C | 05/01-10/09 | 71 | 452 | 185 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 586 | 185 | | | | | | | | | |
| 2911 | 401 | 7756 | 32802 | 6235 | 1442 | 79 | -- | -- | 93 C | 03/01-02/28 | 100 | 1115 | -- | 1261 | 1115 | 1261 | 908 | 1054 | 0 | 0 | 1115 | 1115 |
| 2932 | 422 | 1241 | 2479 | 1241 | -- | -- | -- | -- | 5 C | 03/01-02/28 | 100 | 57 | -- | 293 | 293 | 293 | 238 | 238 | 0 | 0 | 293 | 293 |
| | | | | | | | | | 46 C | 05/01-10/15 | 93 | 236 | 18 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 293 | 18 | | | | | | | | | |
| 2941 | 431 | 1356 | 6574 | 1224 | 132 | -- | -- | -- | 15 C | 03/01-02/28 | 100 | 177 | -- | 189 | 177 | 189 | 117 | 129 | 0 | 0 | 177 | 177 |
| 2957 | 447 | 1861 | 7020 | 1419 | 442 | -- | -- | -- | 26 C | 03/01-02/28 | 100 | 312 | -- | 352 | 312 | 352 | 292 | 332 | 0 | 0 | 312 | 312 |

PROPOSED AMPS (cont.)

| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | PUBLIC LAND RANGE CONDITION |  |  |  | CURRENT USE |  |  | PUBLIC |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  | TP | # & CLS | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A ST | ALTN. A LT | ALTN. B ST | ALTN. B LT | ALTN. C ST | ALTN. C LT | ALTN. D ST | ALTN. D LT |
| 2958 | 448 | 1616 | 600 | 1454 | 142 | 20 | — | — | 35 C | 03/01-02/28 | 100 | 424 | -- | 441 | 424 | 441 | 337 | 354 | 0 | 0 | 424 | 424 |
| 2994 | 484 | 4591 | 10040 | 4591 | -- | -- | — | — | 102 C | 03/01-02/28 | 100 | 1225 | — | 1225 | 1225 | 1225 | 1201 | 1201 | 0 | 0 | 1225 | 1225 |
| 2995 | 485 | 2004 | 2004 | 1701 | 303 | -- | — | -- | 27 C | 03/01-02/28 | 100 | 320 | -- | 348 | 320 | 348 | 282 | 310 | 0 | 0 | 320 | 320 |
| 2999 | 489 | 1945 | 4000 | 1597 | 348 | -- | -- | — | 29 C | 03/01-02/28 | 100 | 341 | — | 373 | 341 | 373 | 282 | 314 | 0 | 0 | 341 | 341 |
| 3004 | 494 | 4204 | 21740 | 4117 | 87 | -- | -- | -- | 100 C | 03/01-02/28 | 100 | 1202 | -- | 1210 | 1202 | 1210 | 1156 | 1164 | 0 | 0 | 1202 | 1202 |
| 3005 | 495 | 801 | 2290 | 801 | -- | -- | -- | — | 14 C | 03/02-02/28 | 100 | 165 | — | 165 | 165 | 165 | 0 | 0 | 0 | 0 | 165 | 165 |
| 3006 | 496 | 750 | 1800 | 686 | 64 | -- | -- | -- | 16 C | 03/01-02/28 | 100 | 188 | -- | 193 | 188 | 193 | 168 | 173 | 0 | 0 | 188 | 188 |
| 3010 | 500 | 2670 | 2080 | 2670 | -- | -- | -- | — | 63 C | 03/01-02/28 | 100 | 752 | — | 752 | 752 | 752 | 639 | 639 | 0 | 0 | 752 | 752 |
| 3025 | 515 | 683 | 2000 | 683 | -- | -- | -- | -- | 15 C | 03/01-02/28 | 100 | 184 | -- | 184 | 184 | 184 | 143 | 143 | 0 | 0 | 184 | 184 |
| 3032 | 522 | 1308 | 1680 | 1233 | 75 | -- | -- | — | 17 C | 03/01-02/28 | 100 | 202 | — | 209 | 202 | 209 | 156 | 163 | 0 | 0 | 202 | 202 |
| 3054 | 544 | 1025 | 3640 | 1025 | — | -- | — | -- | 23 C | 03/01-02/28 | 100 | 272 | -- | 272 | 272 | 272 | 204 | 204 | 0 | 0 | 272 | 272 |
| 3056 | 546 | 6829 | 20922 | 6829 | -- | -- | -- | — | 144 C | 03/01-02/28 | 100 | 1726 | -- | 1726 | 1726 | 1726 | 533 | 533 | 0 | 0 | 1726 | 1726 |
| 3058 | 548 | 3957 | 7560 | 3894 | 63 | -- | — | -- | 66 C | 03/01-02/28 | 100 | 792 | — | 792 | 792 | 792 | 589 | 589 | 0 | 0 | 792 | 792 |
| 3059 | 549 | 1280 | 1040 | 1268 | 12 | -- | -- | — | 21 C | 03/01-02/28 | 100 | 248 | -- | 249 | 248 | 249 | 213 | 214 | 0 | 0 | 248 | 248 |
| 6374 | 847 | 6233 | 3410 | 5293 | 290 | -- | -- | 650 | 6 C | 03/01-02/28 | 100 | 74 | -- | 1124 | 1056 | 1124 | 451 | 525 | 0 | 0 | 1056 | 1056 |
|  |  |  |  |  |  |  |  |  | 208 C | 04/01-11/30 | 59 | 982 | — |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 1056 | 682 |  |  |  |  |  |  |  |  |  |
| 6376 | 849 | 3571 | 1181 | 3571 | -- | -- | — | — | 3 C | 03/01-02/28 | 100 | 32 | 682 | 602 | 602 | 602 | 342 | 342 | 0 | 0 | 602 | 602 |
|  |  |  |  |  |  |  |  |  | 95 C | 04/16-06/15 | 75 | 143 | 47 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 95 C | 07/16-01/15 | 75 | 427 | 143 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 602 | 190 |  |  |  |  |  |  |  |  |  |

YEARLONG AND SEASON AND NUMBER ALLOTMENTS

| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A | | ALTN. B | | ALTN. C | | ALTN. D | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | ST | LT | ST | LT | ST | LT | ST | LT |
| 2000 | 1 | 4406 | 8216 | 4406 | -- | -- | -- | -- | 62 | C | 03/01-02/28 | 100 | 743 | -- | 743 | 743 | 743 | 743 | 743 | 0 | 0 | 743 | 743 |
| 2001 | 2 | 40 | 1600 | 40 | -- | -- | -- | -- | 1 | C | 03/01-02/28 | 100 | 12 | -- | 12 | 12 | 12 | 12 | 12 | 0 | 0 | 12 | 12 |
| 2002 | 480 | 80 | 2760 | 80 | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 24 | -- | 24 | 24 | 24 | 24 | 24 | 0 | 0 | 24 | 24 |
| 2004 | 5 | 185 | 3082 | 105 | 80 | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 20 | -- | 27 | 20 | 27 | 19 | 26 | 0 | 0 | 20 | 20 |
| 2005 | 6 | 76 | 616 | -- | 76 | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 24 | -- | 30 | 24 | 30 | 22 | 28 | 0 | 0 | 24 | 24 |
| 2006 | 7 | 40 | 880 | -- | 40 | -- | -- | -- | 1 | C | 03/01-02/28 | 100 | 8 | -- | 8 | 8 | 8 | 8 | 8 | 0 | 0 | 8 | 8 |
| 2007 | 8 | 160 | 800 | 85 | 75 | -- | -- | -- | 3 | C | 03/01-02/28 | 100 | 36 | -- | 43 | 36 | 43 | 27 | 34 | 0 | 0 | 36 | 36 |
| 2008 | 10 | 53 | 486 | -- | 53 | -- | -- | -- | 15 | S | 03/01-02/28 | 100 | 34 | -- | 38 | 34 | 38 | 34 | 38 | 0 | 0 | 34 | 34 |
| 2010 | 12 | 487 | 1280 | 197 | 275 | 15 | -- | -- | 8 | C | 03/01-02/28 | 100 | 101 | -- | 129 | 101 | 129 | 93 | 121 | 0 | 0 | 101 | 101 |
| 2011 | 13 | 1320 | 17491 | 1320 | -- | -- | -- | -- | 29 | C | 03/01-02/28 | 100 | 344 | -- | 349 | 349 | 349 | 112 | 112 | 0 | 0 | 349 | 349 |
| | | | | | | | | | 1 | C | 05/01-09/30 | 100 | 5 | -- | | | | | | | | | |
| | 433 | 1320 | 3120 | 1320 | -- | -- | -- | -- | 22 | C | 03/01-02/28 | 100 | 267 | -- | 267 | 267 | 267 | 267 | 267 | 0 | 0 | 267 | 267 |
| | | | | | | | | | | | TOTAL | | 616 | -- | | | | | | | | | |
| 2013 | 16 | 160 | 4160 | 160 | -- | -- | -- | -- | 7 | C | 05/01-10/15 | 100 | 39 | -- | 39 | 39 | 39 | 0 | 0 | 0 | 0 | 39 | 39 |
| 2019 | 22 | 80 | 880 | 40 | 40 | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 20 | -- | 24 | 20 | 24 | 20 | 24 | 0 | 0 | 20 | 20 |
| 2021 | 28 | 662 | 11158 | 735 | -- | -- | -- | -- | 14 | C | 03/01-02/28 | 100 | 163 | -- | 163 | 163 | 163 | 160 | 160 | 0 | 0 | 163 | 163 |
| | 29 | 73 | 525 | -- | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 18 | -- | 18 | 18 | 18 | 18 | 18 | 0 | 0 | 18 | 18 |
| 2027 | 37 | 120 | 1160 | 120 | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 24 | -- | 24 | 24 | 24 | 24 | 24 | 0 | 0 | 24 | 24 |
| 2028 | 38 | 1905 | 7646 | 1855 | 50 | -- | -- | -- | 43 | C | 05/01-11/30 | 100 | 301 | -- | 305 | 301 | 305 | 253 | 257 | 0 | 0 | 301 | 301 |
| 2034 | 44 | 80 | 7776 | 55 | -- | -- | 290 | -- | 3 | C | 04/01-10/30 | 100 | 21 | -- | 21 | 21 | 21 | 15 | 15 | 0 | 0 | 21 | 21 |
| 2035 | 45 | 265 | 720 | -- | -- | -- | -- | -- | 5 | C | 03/01-02/28 | 100 | 55 | -- | 55 | 55 | 55 | 0 | 0 | 0 | 0 | 55 | 55 |
| 2036 | 46 | 715 | 2280 | 715 | -- | -- | -- | -- | 10 | C | 03/01-02/28 | 100 | 124 | -- | 124 | 124 | 124 | 0 | 0 | 0 | 0 | 124 | 124 |
| 2039 | 50 | 40 | 2640 | 40 | -- | -- | -- | -- | 1 | C | 03/01-02/28 | 100 | 12 | -- | 12 | 12 | 12 | 9 | 9 | 0 | 0 | 12 | 12 |
| 2040 | 51 | 120 | 960 | 120 | -- | -- | -- | -- | 3 | C | 03/01-02/28 | 100 | 36 | -- | 36 | 36 | 36 | 36 | 36 | 0 | 0 | 36 | 36 |
| 2041 | 52 | 2624 | 8689 | 1984 | 40 | -- | 600 | -- | 40 | C | 03/01-02/28 | 100 | 478 | -- | 478 | 478 | 478 | 390 | 390 | 0 | 0 | 478 | 478 |
| 2042 | 53 | 1202 | 19810 | 1022 | -- | -- | -- | 180 | 24 | C | 03/01-02/18 | 100 | 283 | -- | 335 | 283 | 335 | 274 | 274 | 0 | 0 | 283 | 283 |
| 2043 | 54 | 80 | 2160 | 80 | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 18 | -- | 18 | 18 | 18 | 13 | 13 | 0 | 0 | 18 | 18 |
| 2044 | 55 | 584 | 6880 | 529 | 55 | -- | -- | -- | 11 | C | 03/01-02/28 | 100 | 128 | -- | 133 | 128 | 133 | 110 | 115 | 0 | 0 | 128 | 128 |
| 2045 | 56 | 140 | 1520 | 140 | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 28 | -- | 28 | 28 | 28 | 28 | 28 | 0 | 0 | 28 | 28 |
| 2047 | 58 | 480 | 3000 | 480 | -- | -- | -- | -- | 6 | C | 03/01-02/28 | 100 | 74 | -- | 74 | 74 | 74 | 74 | 74 | 0 | 0 | 74 | 74 |
| 2048 | 59 | 12055 | 96381 | 11675 | 380 | -- | -- | -- | 500 | S | 03/01-02/28 | 100 | 1200 | -- | 2170 | 2170 | 2170 | 820 | 820 | 0 | 0 | 2170 | 2170 |
| | | | | | | | | | 73 | C | 03/01-12/31 | 100 | 730 | -- | | | | | | | | | |
| | | | | | | | | | 20 | H | 03/01-02/28 | 100 | 240 | -- | | | | | | | | | |
| | | | | | | | | | | | TOTAL | | 2170 | -- | | | | | | | | | |
| 2051 | 62 | 640 | 5120 | 640 | -- | -- | -- | -- | 10 | C | 03/01-02/28 | 100 | 121 | -- | 121 | 121 | 121 | 96 | 96 | 0 | 0 | 121 | 121 |
| 2053 | 64 | 1127 | 4173 | 487 | -- | -- | 640 | -- | 3 | C | 03/01-02/28 | 100 | 40 | -- | 210 | 210 | 210 | 208 | 208 | 0 | 0 | 210 | 210 |
| | | | | | | | | | 103 | C | 05/16-09/15 | 41 | 170 | 245 | | | | | | | | | |
| | | | | | | | | | | | TOTAL | | 210 | 245 | | | | | | | | | |
| 2059 | 71 | 400 | 3640 | 400 | -- | -- | -- | -- | 22 | C | 05/01-09/30 | 100 | 110 | -- | 110 | 110 | 110 | 14 | 14 | 0 | 0 | 110 | 110 |
| 2061 | 75 | 547 | 3730 | 547 | -- | -- | -- | -- | 9 | C | 05/01-12/28 | 100 | 93 | -- | 93 | 93 | 93 | 93 | 93 | 0 | 0 | 93 | 93 |
| 2062 | 76 | 46 | 1311 | 46 | -- | -- | -- | -- | 1 | C | 03/01-09/30 | 100 | 7 | -- | 7 | 7 | 7 | 7 | 7 | 0 | 0 | 7 | 7 |
| 2063 | 77 | 1751 | 5808 | 1751 | -- | -- | -- | -- | 12 | C | 03/01-02/28 | 100 | 148 | -- | 148 | 148 | 148 | 63 | 63 | 0 | 0 | 148 | 148 |
| 2065 | 78 | 200 | 2280 | 160 | 40 | -- | -- | -- | 4 | C | 03/01-02/28 | 100 | 43 | -- | 47 | 43 | 47 | 36 | 40 | 0 | 0 | 43 | 43 |
| 2066 | 79 | 605 | 4540 | 447 | 158 | -- | -- | -- | 9 | C | 03/01-02/28 | 100 | 114 | -- | 128 | 114 | 128 | 105 | 119 | 0 | 0 | 114 | 114 |
| 2070 | 83 | 135 | 1005 | 135 | -- | -- | -- | -- | 1 | C | 03/01-02/28 | 100 | 12 | -- | 12 | 12 | 12 | 12 | 12 | 0 | 0 | 12 | 12 |
| 2072 | 86 | 40 | 2520 | -- | 40 | -- | -- | -- | 1 | C | 03/01-02/28 | 100 | 12 | -- | 16 | 12 | 16 | 9 | 13 | 0 | 0 | 12 | 12 |
| 2073 | 87 | 962 | 16057 | 962 | -- | -- | -- | -- | 21 | C | 03/01-02/28 | 100 | 257 | -- | 257 | 257 | 257 | 0 | 0 | 0 | 0 | 257 | 257 |
| 2075 | 89 | 2152 | 27676 | 2152 | -- | -- | -- | -- | 336 | S | 05/15-10/15 | 100 | 336 | -- | 406 | 406 | 406 | 352 | 352 | 0 | 0 | 406 | 406 |
| | | | | | | | | | 14 | C | 05/15-10/15 | 100 | 70 | -- | | | | | | | | | |
| | | | | | | | | | | | TOTAL | | 406 | -- | | | | | | | | | |
| 2077 | 91 | 320 | 8373 | 320 | -- | -- | -- | -- | 3 | C | 03/01-12/24 | 100 | 32 | -- | 32 | 32 | 32 | 25 | 25 | 0 | 0 | 32 | 32 |

YEARLONG AND SEASON AND NUMBER ALLOTMENTS (cont.)

| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | PUBLIC LAND RANGE CONDITION | | | | | CURRENT USE | | | PUBLIC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | TP | # & CLS | | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A | | ALTN. B | | ALTN. C | | ALTN. D | |
| | | | | | | | | | | | | | | | | ST | LT | ST | LT | ST | LT | ST | LT |
| 2080 | 94 | 2097 | 14637 | 2097 | -- | -- | -- | -- | 32 | C | 03/01-02/28 | 100 | 384 | -- | 384 | 384 | 384 | 367 | 367 | 0 | 0 | 384 | 384 |
| 2083 | 99 | 60 | 580 | 60 | -- | -- | -- | -- | 1 | C | 03/01-02/28 | 100 | 12 | -- | 12 | 12 | 12 | 12 | 12 | 0 | 0 | 12 | 12 |
| 2086 | 103 | 40 | 720 | 40 | -- | -- | -- | -- | 1 | C | 03/01-11/30 | 100 | 9 | -- | 9 | 9 | 9 | 9 | 9 | 0 | 0 | 9 | 9 |
| 2087 | 104 | 1240 | 16475 | 1240 | -- | -- | -- | -- | 15 | C | 03/01-02/28 | 100 | 180 | -- | 180 | 180 | 180 | 180 | 180 | 0 | 0 | 180 | 180 |
| 2088 | 105 | 2240 | 19469 | 2240 | -- | -- | -- | -- | 18 | C | 03/01-02/28 | 100 | 216 | -- | 216 | 216 | 216 | 216 | 216 | 0 | 0 | 216 | 216 |
| 2089 | 106 | 184 | 5237 | 184 | -- | -- | -- | -- | 5 | C | 03/01-02/28 | 100 | 64 | -- | 64 | 64 | 64 | 64 | 64 | 0 | 0 | 64 | 64 |
| 2090 | 107 | 320 | 9627 | 320 | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 25 | -- | 25 | 25 | 25 | 25 | 25 | 0 | 0 | 25 | 25 |
| 2096 | 114 | 160 | 1400 | 160 | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 24 | -- | 24 | 24 | 24 | 24 | 24 | 0 | 0 | 24 | 24 |
| 2097 | 115 | 40 | 13720 | 40 | -- | -- | -- | -- | 1 | C | 03/01-02/28 | 100 | 11 | -- | 11 | 11 | 11 | 11 | 11 | 0 | 0 | 11 | 11 |
| 2103 | 124 | 920 | 2851 | 920 | -- | -- | -- | -- | 20 | C | 03/01-02/28 | 100 | 241 | | 241 | 241 | 241 | 241 | 241 | 0 | 0 | 241 | 241 |
| 2109 | 130 | 80 | 1480 | 80 | -- | -- | -- | -- | 1 | C | 03/01-02/28 | 100 | 14 | | 14 | 14 | 14 | 14 | 14 | 0 | 0 | 14 | 14 |
| 2113 | 134 | 3840 | 12431 | 3180 | 660 | -- | -- | -- | 350 | Y | 05/01-10/14 | 21 | 404 | 1521 | 738 | 679 | 738 | 679 | 738 | 0 | 0 | 679 | 679 |
| | | | | | | | | | 200 | Y | 05/15-09/30 | 21 | 189 | 486 | | | | | | | | | |
| | | | | | | | | | 60 | Y | 10/01-11/30 | 21 | 25 | 65 | | | | | | | | | |
| | | | | | | | | | 30 | Y | 10/01-11/30 | 100 | 61 | | | | | | | | | | |
| | | | | | | | | | | | TOTAL | | 679 | 2072 | | | | | | | | | |
| 2114 | 135 | 640 | 23413 | 640 | -- | -- | -- | -- | 9 | C | 03/01-02/28 | 100 | 108 | -- | 108 | 108 | 108 | 108 | 108 | 0 | 0 | 108 | 108 |
| 2115 | 136 | 1301 | 28601 | 1301 | -- | -- | -- | -- | 105 | S | 03/01-02/28 | 100 | 253 | -- | 253 | 253 | 253 | 199 | 199 | 0 | 0 | 253 | 253 |
| 2117 | 140 | 1429 | 24436 | 1369 | 60 | -- | -- | -- | 120 | S | 03/01-02/28 | 100 | 288 | -- | 296 | 288 | 296 | 206 | 214 | 0 | 0 | 288 | 291 |
| 2119 | 143 | 183 | 3109 | 183 | -- | -- | -- | -- | 5 | C | 03/01-02/28 | 100 | 64 | -- | 64 | 64 | 64 | 64 | 64 | 0 | 0 | 64 | 64 |
| 2120 | 144 | 355 | 4744 | 355 | -- | -- | -- | -- | 7 | C | 03/01-02/28 | 100 | 84 | -- | 84 | 84 | 84 | 84 | 84 | 0 | 0 | 84 | 84 |
| 2121 | 145 | 600 | 2860 | 500 | 100 | -- | -- | -- | 11 | C | 03/01-02/28 | 100 | 132 | -- | 141 | 132 | 141 | 123 | 132 | 0 | 0 | 132 | 132 |
| 2122 | 146 | 199 | 1800 | 199 | -- | -- | -- | -- | 3 | C | 03/01-02/28 | 100 | 38 | -- | 38 | 38 | 38 | 38 | 38 | 0 | 0 | 38 | 38 |
| 2123 | 147 | 120 | 10520 | 120 | -- | -- | -- | -- | 3 | C | 03/01-12/31 | 100 | 33 | -- | 33 | 33 | 33 | 33 | 33 | 0 | 0 | 33 | 33 |
| 2126 | 150 | 1432 | 4160 | 762 | 670 | -- | -- | -- | 20 | C | 03/01-02/28 | 100 | 236 | -- | 271 | 236 | 271 | 220 | 255 | 0 | 0 | 236 | 236 |
| 2127 | 151 | 916 | 7640 | 916 | -- | -- | -- | -- | 12 | C | 03/01-02/28 | 100 | 140 | -- | 140 | 140 | 140 | 114 | 114 | 0 | 0 | 140 | 140 |
| 2128 | 152 | 160 | 4757 | 150 | 10 | -- | -- | -- | 3 | C | 03/01-02/28 | 100 | 33 | -- | 33 | 33 | 33 | 33 | 33 | 0 | 0 | 33 | 33 |
| 2132 | 157 | 352 | 4560 | 352 | -- | -- | -- | -- | 7 | C | 03/01-02/28 | 100 | 81 | -- | 81 | 81 | 81 | 72 | 72 | 0 | 0 | 81 | 81 |
| 2136 | 160 | 40 | 480 | 40 | -- | -- | -- | -- | 2 | C | 05/01-09/30 | 100 | 11 | -- | 11 | 11 | 11 | 11 | 11 | 0 | 0 | 11 | 11 |
| 2137 | 161 | 243 | 1084 | 83 | 160 | -- | -- | -- | 4 | C | 03/01-11/30 | 100 | 32 | -- | 46 | 32 | 46 | 28 | 42 | 0 | 0 | 32 | 32 |
| 2138 | 162 | 160 | 320 | 160 | -- | -- | -- | -- | 3 | C | 03/01-08/31 | 100 | 19 | -- | 19 | 19 | 19 | 16 | 16 | 0 | 0 | 19 | 19 |
| 2140 | 164 | 5683 | 19200 | 5683 | -- | -- | -- | -- | 109 | C | 03/01-02/28 | 100 | 1311 | -- | 1311 | 1311 | 1311 | 1219 | 1219 | 0 | 0 | 1311 | 1311 |
| 2141 | 165 | 400 | 1260 | 400 | -- | -- | -- | -- | 9 | C | 03/01-02/28 | 100 | 111 | -- | 111 | 111 | 111 | 92 | 92 | 0 | 0 | 111 | 111 |
| 2142 | 166 | 245 | 3520 | 205 | -- | -- | -- | 40 | 7 | C | 03/01-02/28 | 100 | 84 | -- | 89 | 84 | 89 | 84 | 89 | 0 | 0 | 84 | 84 |
| 2143 | 167 | 320 | 13550 | 320 | -- | -- | -- | -- | 3 | C | 03/01-02/28 | 100 | 41 | -- | 51 | 51 | 51 | 51 | 51 | 0 | 0 | 51 | 51 |
| 2145 | 172 | 1811 | 40000 | 2824 | 20 | -- | -- | -- | 35 | C | 03/01-02/28 | 100 | 414 | -- | 414 | 414 | 414 | 306 | 306 | 0 | 0 | 414 | 414 |
| | 173 | 1033 | -- | -- | IN | 2145 | 172 | -- | 21 | C | 03/01-02/28 | 100 | 253 | -- | 255 | 253 | 255 | 253 | 255 | 0 | 0 | 253 | 253 |
| | | | | | | | | | | | TOTAL | | 667 | -- | | | | | | | | | |
| 2147 | 175 | 40 | 1993 | 40 | -- | -- | -- | -- | 1 | C | 03/01-02/28 | 100 | 11 | -- | 11 | 11 | 11 | 11 | 11 | 0 | 0 | 11 | 11 |
| 2148 | 176 | 497 | 6240 | 497 | -- | -- | -- | -- | 9 | C | 03/02-02/28 | 100 | 104 | -- | 104 | 104 | 104 | 97 | 97 | 0 | 0 | 104 | 104 |
| 2149 | 177 | 40 | 4920 | 40 | -- | -- | -- | -- | 1 | C | 03/01-02/28 | 100 | 11 | -- | 11 | 11 | 11 | 0 | 0 | 0 | 0 | 11 | 11 |
| 2151 | 182 | 276 | 6400 | 276 | -- | -- | -- | -- | 4 | C | 03/01-02/28 | 100 | 48 | -- | 48 | 48 | 48 | 48 | 48 | 0 | 0 | 48 | 48 |
| 2155 | 185 | 79 | 88475 | 79 | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 27 | -- | 27 | 27 | 27 | 27 | 27 | 0 | 0 | 27 | 27 |
| 2156 | 186 | 1759 | 12552 | 1459 | 300 | -- | -- | -- | 27 | C | 03/01-02/28 | 100 | 328 | -- | 355 | 328 | 355 | 328 | 355 | 0 | 0 | 328 | 328 |
| 2158 | 189 | 80 | 7950 | 80 | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 23 | -- | 23 | 23 | 23 | 21 | 21 | 0 | 0 | 23 | 23 |
| 2159 | 190 | 440 | 1984 | 260 | 180 | -- | -- | -- | 8 | C | 03/01-10/31 | 100 | 64 | -- | 80 | 64 | 80 | 46 | 62 | 0 | 0 | 64 | 64 |
| 2160 | 191 | 283 | 1920 | 237 | 46 | -- | -- | -- | 6 | C | 04/01-11/30 | 100 | 46 | -- | 55 | 46 | 55 | 29 | 38 | 0 | 0 | 46 | 46 |
| 2161 | 192 | 360 | 2240 | 360 | -- | -- | -- | -- | 6 | C | 03/01-01/31 | 100 | 66 | -- | 66 | 66 | 66 | 64 | 64 | 0 | 0 | 66 | 66 |
| 2162 | 193 | 360 | 2160 | 360 | -- | -- | -- | -- | 5 | C | 03/01-02/28 | 100 | 60 | -- | 60 | 60 | 60 | 51 | 51 | 0 | 0 | 60 | 60 |
| 2163 | 194 | 40 | 1880 | 40 | -- | -- | -- | -- | 1 | C | 03/01-09/30 | 100 | 7 | -- | 7 | 7 | 7 | 7 | 7 | 0 | 0 | 7 | 7 |
| 2164 | 195 | 960 | 4160 | 960 | -- | -- | -- | -- | 14 | C | 03/01-02/28 | 100 | 169 | -- | 169 | 169 | 169 | 158 | 158 | 0 | 0 | 169 | 169 |
| 2167 | 199 | 5362 | 23389 | 5282 | 80 | -- | -- | -- | 295 | S | 03/01-02/28 | 100 | 710 | -- | 715 | 710 | 715 | 710 | 715 | 0 | 0 | 710 | 710 |

## YEARLONG AND SEASON AND NUMBER ALLOTMENTS (cont.)

| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | PUBLIC LAND RANGE CONDITION |  |  |  |  | # & CLS | SEASON | % PUBLIC | CURRENT USE |  | POTENTIAL AUMS | PUBLIC |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  | E+G | FAIR | POOR | UNKNOWN | TP |  |  |  | PUBLIC AUMS | OTHER AUMS |  | ALTN. A |  | ALTN. B |  | ALTN. C |  | ALTN. D |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ST | LT | ST | LT | ST | LT | ST | LT |
| 2168 | 200 | 367 | 10905 | 327 | -- | -- | 40 | -- | 6 C | 03/01-02/28 | 100 | 72 | -- | 74 | 74 | 74 | 74 | 74 | 0 | 0 | 74 | 74 |
|  |  |  |  |  |  |  |  |  | 10 S | 03/01-04/30 | 100 | 2 | -- |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 74 | -- |  |  |  |  |  |  |  |  |  |
| 2169 | 201 | 2675 | 7775 | 2675 | -- | -- | -- | -- | 71 C | 05/01-11/30 | 100 | 495 | -- | 495 | 495 | 495 | 495 | 495 | 0 | 0 | 495 | 495 |
| 2170 | 202 | 800 | 4520 | 800 | -- | -- | -- | -- | 17 C | 03/01-02/28 | 100 | 200 | -- | 200 | 200 | 200 | 200 | 200 | 0 | 0 | 200 | 200 |
| 2171 | 203 | 1063 | 6577 | 423 | -- | -- | 640 | -- | 15 C | 03/01-02/28 | 100 | 187 | -- | 187 | 187 | 187 | 187 | 187 | 0 | 0 | 187 | 187 |
| 2172 | 204 | 4150 | 18085 | 4150 | -- | -- | -- | -- | 48 C | 03/01-03/31 | 100 | 45 | -- | 780 | 780 | 780 | 780 | 780 | 0 | 0 | 780 | 780 |
|  |  |  |  |  |  |  |  |  | 38 C | 09/04-02/28 | 100 | 227 | - |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 350 C | 04/01-05/23 | 27 | 168 | 96 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 350 C | 05/24-07/03 | 57 | 264 | 203 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 350 C | 07/04-09/03 | 11 | 76 | 624 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 780 | 923 |  |  |  |  |  |  |  |  |  |
| 2173 | 205 | 1178 | 1605 | 1138 | -- | -- | 40 | -- | 23 C | 03/01-02/28 | 100 | 273 | -- | 273 | 273 | 273 | 82 | 82 | 0 | 0 | 273 | 273 |
| 2174 | 206 | 160 | 880 | 160 | -- | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 31 | -- | 31 | 31 | 31 | 27 | 27 | 0 | 0 | 31 | 31 |
| 2176 | 209 | 320 | 364 | 320 | -- | -- | -- | -- | 30 C | 04/01-10/31 | 43 | 91 | 121 | 91 | 91 | 91 | 71 | 71 | 0 | 0 | 91 | 91 |
| 2177 | 210 | 30 | 155 | 30 | -- | -- | -- | -- | 3 C | 07/01-07/31 | 100 | 3 | -- | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 |
| 2179 | 212 | 6672 | 14386 | 6552 | 120 | -- | -- | -- | 94 C | 03/01-02/28 | 100 | 1133 | -- | 1144 | 1133 | 1144 | 963 | 974 | 0 | 0 | 1133 | 1133 |
| 2180 | 213 | 528 | 24396 | 378 | 150 | -- | -- | -- | 10 C | 03/01-02/28 | 100 | 118 | -- | 154 | 118 | 154 | 107 | 143 | 0 | 0 | 118 | 118 |
| 2181 | 214 | 79 | 477 | 79 | -- | -- | -- | -- | 2 C | 03/01-09/30 | 100 | 14 | -- | 14 | 14 | 14 | 14 | 14 | 0 | 0 | 14 | 14 |
| 2182 | 215 | 634 | 13520 | 314 | -- | -- | 320 | -- | 47 C | 06/01-08/31 | 100 | 141 | -- | 141 | 141 | 141 | 101 | 101 | 0 | 0 | 141 | 141 |
| 2183 | 216 | 4694 | 27824 | 4234 | 360 | -- | -- | 100 | 590 S | 03/01-02/28 | 100 | 1420 | -- | 1452 | 1420 | 1452 | 1376 | 1408 | 0 | 0 | 1420 | 1420 |
| 2184 | 217 | 1164 | 8966 | 1473 | -- | -- | -- | -- | 21 C | 03/01-02/28 | 100 | 252 | -- | 252 | 252 | 252 | 227 | 227 | 0 | 0 | 252 | 252 |
|  | 218 | 314 | 1268 |  |  |  |  |  | 112 C | 08/01-10/31 | 18 | 61 | 278 | 61 | 61 | 61 | 61 | 61 | 0 | 0 | 61 | 61 |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 313 | 278 |  |  |  |  |  |  |  |  |  |
| 2185 | 219 | 360 | 3686 | 320 | 40 | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 36 | -- | 40 | 36 | 40 | 31 | 35 | 0 | 0 | 36 | 36 |
| 2187 | 222 | 1227 | 11592 | 1227 | -- | -- | -- | -- | 15 C | 03/01-02/28 | 100 | 180 | -- | 180 | 180 | 180 | 180 | 180 | 0 | 0 | 180 | 180 |
| 2188 | 223 | 1592 | 29789 | 1592 | -- | -- | -- | -- | 28 C | 03/01-02/28 | 100 | 334 | -- | 334 | 334 | 334 | 334 | 334 | 0 | 0 | 334 | 334 |
| 2189 | 224 | 40 | 529 | 40 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 9 | -- | 9 | 9 | 9 | 7 | 7 | 0 | 0 | 9 | 9 |
| 2190 | 225 | 320 | 7093 | 320 | -- | -- | -- | -- | 7 C | 03/01-02/28 | 100 | 89 | -- | 89 | 89 | 89 | 89 | 89 | 0 | 0 | 89 | 89 |
| 2191 | 226 | 200 | 880 | 200 | -- | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 38 | -- | 38 | 38 | 38 | 34 | 34 | 0 | 0 | 38 | 38 |
| 2192 | 227 | 120 | 3600 | 80 | 40 | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 29 | -- | 33 | 29 | 33 | 23 | 27 | 0 | 0 | 29 | 29 |
| 2193 | 228 | 971 | 14417 | 931 | 20 | 20 | -- | -- | 115 S | 03/01-02/28 | 100 | 276 | -- | 313 | 276 | 313 | 276 | 313 | 0 | 0 | 276 | 276 |
| 2194 | 229 | 490 | 4151 | 460 | 30 | -- | -- | -- | 4 C | 03/01-02/28 | 100 | 52 | -- | 54 | 52 | 54 | 45 | 47 | 0 | 0 | 52 | 52 |
| 2195 | 230 | 634 | 8690 | 634 | -- | -- | -- | -- | 16 C | 03/01-02/28 | 100 | 197 | -- | 197 | 197 | 197 | 175 | 175 | 0 | 0 | 197 | 197 |
| 2196 | 231 | 80 | 1640 | 80 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 18 | -- | 18 | 18 | 18 | 16 | 16 | 0 | 0 | 18 | 18 |
| 2197 | 232 | 915 | 3040 | 875 | 40 | -- | -- | -- | 11 C | 03/01-02/28 | 100 | 132 | -- | 136 | 132 | 136 | 121 | 125 | 0 | 0 | 132 | 132 |
| 2200 | 237 | 160 | 1666 | 160 | -- | -- | -- | -- | 20 S | 03/01-02/28 | 100 | 46 | -- | 46 | 46 | 46 | 46 | 46 | 0 | 0 | 46 | 46 |
| 2201 | 238 | 1489 | 6131 | 569 | 920 | -- | -- | -- | 18 C | 03/01-02/28 | 100 | 215 | -- | 279 | 215 | 279 | 178 | 242 | 0 | 0 | 215 | 215 |
| 2202 | 239 | 600 | 15441 | 600 | -- | -- | -- | -- | 55 S | 03/01-02/28 | 100 | 136 | -- | 136 | 136 | 136 | 80 | 80 | 0 | 0 | 136 | 136 |
| 2203 | 470 | 360 | 6566 | 300 | -- | -- | 60 | -- | 15 C | 03/01-08/31 | 100 | 91 | -- | 91 | 91 | 91 | 91 | 91 | 0 | 0 | 91 | 91 |
| 2204 | 107 | 320 | 127040 | 2569 | 310 | -- | 310 | -- | 10 S | 03/01-02/28 | 100 | 25 | -- | 406 | 404 | 406 | 381 | 383 | 0 | 0 | 404 | 404 |
|  | 241 | 289 |  |  |  |  |  |  | 160 S | 03/01-02/28 | 100 | 379 | -- |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 404 | -- |  |  |  |  |  |  |  |  |  |
| 2206 | 243 | 3251 | 7160 | 2631 | 140 | -- | -- | 480 | 75 C | 03/01-02/28 | 100 | 895 | -- | 962 | 895 | 962 | 895 | 962 | 0 | 0 | 895 | 895 |
| 2208 | 245 | 80 | 1760 | 80 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 22 | -- | 22 | 22 | 22 | 22 | 22 | 0 | 0 | 22 | 22 |
| 2209 | 246 | 38 | 435 | 38 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 12 | -- | 12 | 12 | 12 | 6 | 6 | 0 | 0 | 12 | 12 |
| 2210 | 247 | 480 | 3590 | 480 | -- | -- | -- | -- | 9 C | 03/01-02/28 | 100 | 104 | -- | 104 | 104 | 104 | 47 | 47 | 0 | 0 | 104 | 104 |
| 2218 | 257 | 240 | 2875 | 240 | -- | -- | -- | -- | 55 S | 05/01-11/07 | 100 | 69 | -- | 69 | 69 | 69 | 69 | 69 | 0 | 0 | 69 | 69 |
| 2221 | 260 | 480 | 2860 | 160 | -- | -- | 320 | -- | 8 C | 03/01-02/28 | 100 | 96 | -- | 96 | 96 | 96 | 90 | 90 | 0 | 0 | 96 | 96 |
| 2222 | 261 | 1760 | 12841 | 1760 | -- | -- | -- | -- | 21 C | 03/01-02/28 | 100 | 252 | -- | 252 | 252 | 252 | 252 | 252 | 0 | 0 | 252 | 252 |

YEARLONG AND SEASON AND NUMBER ALLOTMENTS (cont.)

| | | | | | | | | PUBLIC LAND RANGE CONDITION | | | | | CURRENT USE | | | PUBLIC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & | CLS | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A ST | ALTN. A LT | ALTN. B ST | ALTN. B LT | ALTN. C ST | ALTN. C LT | ALTN. D ST | ALTN. D LT |
| 2226 | 265 | 1785 | 8060 | 1705 | 80 | -- | -- | -- | 20 | C | 03/01-02/28 | 100 | 240 | -- | 353 | 346 | 353 | 303 | 310 | 0 | 0 | 346 | 346 |
| | | | | | | | | | 45 | S | 03/01-02/28 | 100 | 106 | -- | | | | | | | | | |
| | | | | | | | | | | | TOTAL | | 346 | -- | | | | | | | | | |
| 2228 | 267 | 1440 | 21409 | 1390 | 50 | -- | -- | -- | 109 | S | 03/01-02/28 | 100 | 260 | -- | 355 | 350 | 355 | 1 | 6 | 0 | 0 | 350 | 350 |
| | | | | | | | | | 9 | C | 03/01-12/31 | 100 | 90 | -- | | | | | | | | | |
| | | | | | | | | | | | TOTAL | | 350 | -- | | | | | | | | | |
| 2230 | 270 | 400 | 15672 | 370 | 30 | -- | -- | -- | 7 | C | 03/01-02/28 | 100 | 84 | -- | 86 | 84 | 86 | 23 | 25 | 0 | 0 | 84 | 84 |
| 2231 | 271 | 160 | 10400 | 160 | -- | -- | -- | -- | 30 | S | 03/01-04/30 | 100 | 12 | -- | 47 | 47 | 47 | 41 | 41 | 0 | 0 | 47 | 47 |
| | | | | | | | | | 30 | S | 09/01-02/28 | 100 | 35 | -- | | | | | | | | | |
| | | | | | | | | | | | TOTAL | | 47 | -- | | | | | | | | | |
| 2233 | 273 | 957 | 10236 | 747 | 210 | -- | -- | -- | 17 | C | 03/01-12/31 | 100 | 170 | -- | 188 | 170 | 188 | 0 | 0 | 0 | 0 | 170 | 170 |
| 2234 | 274 | 2240 | 31475 | 2240 | -- | -- | -- | -- | 21 | C | 03/01-02/28 | 100 | 259 | -- | 306 | 259 | 306 | 224 | 271 | 0 | 0 | 259 | 259 |
| 2235 | 275 | 40 | 2071 | 40 | -- | -- | -- | -- | 1 | C | 03/01-12/31 | 100 | 10 | -- | 10 | 10 | 10 | 10 | 10 | 0 | 0 | 10 | 10 |
| 2237 | 278 | 1083 | 4167 | 1083 | -- | -- | -- | -- | 103 | S | 03/01-02/28 | 100 | 247 | -- | 271 | 271 | 271 | 262 | 262 | 0 | 0 | 271 | 271 |
| | | | | | | | | | 2 | C | 03/01-02/28 | 100 | 24 | -- | | | | | | | | | |
| | | | | | | | | | | | TOTAL | | 271 | -- | | | | | | | | | |
| 2240 | 281 | 640 | 59065 | 3247 | 230 | -- | -- | -- | 14 | C | 03/01-02/28 | 100 | 169 | -- | 169 | 169 | 169 | 164 | 164 | 0 | 0 | 169 | 169 |
| 2241 | 282 | 2837 | | | IN | 2240 | 281 | | 65 | C | 03/01-02/28 | 100 | 778 | -- | 778 | 778 | 778 | 0 | 0 | 0 | 0 | 778 | 778 |
| | | | | | | | | | | | TOTAL | | 947 | -- | | | | | | | | | |
| 2248 | 288 | 160 | 3930 | 140 | 20 | -- | -- | -- | 25 | S | 03/01-10/31 | 100 | 39 | -- | 41 | 39 | 41 | 0 | 0 | 0 | 0 | 39 | 39 |
| 2249 | 289 | 1988 | 7300 | 1798 | 190 | -- | -- | -- | 43 | C | 03/01-02/28 | 14 | 72 | 442 | 495 | 480 | 495 | 475 | 490 | 0 | 0 | 480 | 480 |
| | | | | | | | | | 1190 | S | 03/01-02/28 | 14 | 400 | 2457 | | | | | | | | | |
| | | | | | | | | | 5 | H | 03/01-02/28 | 14 | 8 | 49 | | | | | | | | | |
| | | | | | | | | | | | TOTAL | | 480 | 2948 | | | | | | | | | |
| 2251 | 292 | 1938 | 17216 | 1908 | 30 | -- | -- | -- | 24 | C | 03/01-02/28 | 100 | 288 | -- | 290 | 288 | 290 | 288 | 290 | 0 | 0 | 288 | 288 |
| 2252 | 293 | 2915 | 6779 | 625 | -- | -- | 2290 | -- | 49 | C | 03/01-12/31 | 100 | 489 | -- | 489 | 489 | 489 | 489 | 489 | 0 | 0 | 489 | 489 |
| 2258 | 299 | 160 | 5149 | 160 | -- | -- | -- | -- | 4 | C | 03/01-12/31 | 100 | 40 | -- | 40 | 40 | 40 | 40 | 40 | 0 | 0 | 40 | 40 |
| 2259 | 300 | 2864 | 20560 | 2734 | 130 | -- | -- | -- | 37 | C | 04/01-11/30 | 100 | 297 | -- | 307 | 297 | 307 | 297 | 307 | 0 | 0 | 297 | 297 |
| 2262 | 304 | 360 | 9044 | 320 | -- | -- | 40 | -- | 14 | C | 06/01-08/31 | 100 | 42 | -- | 42 | 42 | 42 | 4 | 4 | 0 | 0 | 42 | 42 |
| 2268 | 308 | 160 | 3606 | 160 | -- | -- | -- | -- | 4 | C | 03/01-12/81 | 100 | 40 | -- | 40 | 40 | 40 | 40 | 40 | 0 | 0 | 40 | 40 |
| 2269 | 309 | 660 | 3621 | 660 | -- | -- | -- | -- | 10 | C | 03/01-02/28 | 100 | 121 | -- | 121 | 121 | 121 | 119 | 119 | 0 | 0 | 121 | 121 |
| 2271 | 311 | 40 | 230 | -- | -- | -- | 40 | -- | 1 | C | 03/01-12/31 | 100 | 10 | -- | 10 | 10 | 10 | 10 | 10 | 0 | 0 | 10 | 10 |
| 2272 | 312 | 715 | 13230 | 715 | -- | -- | -- | -- | 20 | C | 04/01-11/30 | 100 | 160 | -- | 160 | 160 | 160 | 131 | 131 | 0 | 0 | 160 | 160 |
| 2275 | 315 | 120 | 7880 | 120 | -- | -- | -- | -- | 3 | C | 03/01-02/28 | 100 | 33 | -- | 33 | 33 | 33 | 33 | 33 | 0 | 0 | 33 | 33 |
| 2276 | 316 | 200 | 2197 | 200 | -- | -- | -- | -- | 4 | C | 03/01-02/28 | 100 | 48 | -- | 48 | 48 | 48 | 48 | 48 | 0 | 0 | 48 | 48 |
| 2277 | 317 | 80 | 6550 | 80 | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 18 | -- | 18 | 18 | 18 | 18 | 18 | 0 | 0 | 18 | 18 |
| 2287 | 324 | 40 | 3040 | 40 | -- | -- | -- | -- | 5 | S | 03/01-02/28 | 100 | 12 | -- | 12 | 12 | 12 | 9 | 9 | 0 | 0 | 12 | 12 |
| 2288 | 325 | 320 | 4467 | 280 | 40 | -- | -- | -- | 15 | C | 05/01-10/31 | 100 | 91 | -- | 95 | 91 | 95 | 89 | 93 | 0 | 0 | 91 | 91 |
| 2289 | 326 | 26 | 2566 | 26 | -- | -- | -- | -- | 1 | C | 03/01-02/28 | 100 | 12 | -- | 12 | 12 | 12 | 12 | 12 | 0 | 0 | 12 | 12 |
| 2290 | 327 | 800 | 5432 | 800 | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 21 | -- | 192 | 192 | 192 | 21 | 21 | 0 | 0 | 192 | 192 |
| | | | | | | | | | 29 | C | 09/01-02/28 | 100 | 171 | -- | | | | | | | | | |
| | | | | | | | | | | | TOTAL | | 192 | -- | | | | | | | | | |
| 2291 | 328 | 1941 | 12084 | 1601 | 340 | -- | -- | -- | 436 | C | 05/01-11/30 | 7 | 244 | 3242 | 262 | 244 | 262 | 244 | 262 | 0 | 0 | 244 | 244 |
| 2293 | 330 | 480 | 4040 | 480 | -- | -- | -- | -- | 10 | C | 03/01-02/28 | 100 | 114 | -- | 114 | 114 | 114 | 111 | 111 | 0 | 0 | 114 | 114 |
| 2294 | 331 | 40 | 1572 | -- | 40 | -- | -- | -- | 1 | C | 04/01-11/30 | 100 | 8 | -- | 12 | 8 | 12 | 5 | 9 | 0 | 0 | 8 | 8 |
| 2295 | 332 | 108 | 900 | 108 | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 24 | -- | 24 | 24 | 24 | 18 | 18 | 0 | 0 | 24 | 24 |
| 2296 | 333 | 4765 | 25603 | 4765 | -- | -- | -- | -- | 40 | C | 03/01-02/28 | 100 | 486 | -- | 486 | 486 | 486 | 282 | 282 | 0 | 0 | 486 | 486 |
| 2297 | 334 | 400 | 640 | 400 | -- | -- | -- | -- | 10 | C | 03/01-02/29 | 100 | 115 | -- | 115 | 115 | 115 | 115 | 115 | 0 | 0 | 115 | 115 |
| 2298 | 335 | 40 | 1052 | 40 | -- | -- | -- | -- | 1 | C | 04/01-11/30 | 100 | 8 | -- | 8 | 8 | 8 | 6 | 6 | 0 | 0 | 8 | 8 |
| 2299 | 336 | 80 | 729 | 80 | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 23 | -- | 23 | 23 | 23 | 19 | 19 | 0 | 0 | 23 | 23 |

## YEARLONG AND SEASON AND NUMBER ALLOTMENTS (cont.)

| | | | | | | | | PUBLIC LAND RANGE CONDITION | | | | CURRENT USE | | | | | PUBLIC | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A | | ALTN. B | | ALTN. C | | ALTN. D | |
| | | | | | | | | | | | | | | | ST | LT | ST | LT | ST | LT | ST | LT |
| 2300 | 337 | 640 | 4244 | 500 | 140 | -- | -- | -- | 5 C | 03/01-02/28 | 100 | 60 | -- | 73 | 60 | 73 | 60 | 73 | 0 | 0 | 60 | 60 |
| 2301 | 338 | 440 | 3680 | 1388 | -- | -- | -- | -- | 7 C | 03/01-02/28 | 100 | 90 | -- | 90 | 90 | 90 | 90 | 90 | 0 | 0 | 90 | 90 |
| | 339 | 640 | 5426 | -- | -- | -- | -- | -- | 14 C | 03/01-02/28 | 100 | 171 | -- | 171 | 171 | 171 | 171 | 171 | 0 | 0 | 171 | 171 |
| | 340 | 308 | 2851 | -- | -- | -- | -- | -- | 5 C | 03/01-02/28 | 100 | 63 | -- | 63 | 63 | 63 | 63 | 63 | 0 | 0 | 63 | 63 |
| | | | | | | | | | | TOTAL | | 324 | -- | | 1712 | | | | | | 1712 | 1712 |
| 2303 | 342 | 6244 | 54451 | 9598 | 1870 | -- | -- | -- | 81 C | 03/01-02/28 | 100 | 975 | -- | 1880 | 975 | 1880 | 651 | 819 | 0 | 0 | 975 | 975 |
| | 343 | 5224 | 37200 | | | | | | 61 C | 03/01-02/28 | 100 | 737 | -- | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 1712 | | | | | | | | | | |
| 2304 | 123 | 3840 | 14399 | 3840 | -- | -- | -- | -- | 43 C | 03/01-02-28 | 100 | 520 | -- | 520 | 520 | 520 | 517 | 517 | 0 | 0 | 520 | 520 |
| 2307 | 346 | 535 | 1980 | 135 | 400 | -- | -- | -- | 4 C | 03/01-02/28 | 100 | 48 | -- | 84 | 48 | 84 | 41 | 77 | 0 | 0 | 48 | 48 |
| 2308 | 347 | 960 | 24883 | 560 | 400 | -- | -- | -- | 18 C | 03/01-02/28 | 100 | 218 | -- | 244 | 218 | 244 | 218 | 244 | 0 | 0 | 218 | 218 |
| 2309 | 348 | 320 | 1020 | 320 | -- | -- | -- | -- | 5 C | 03/01-02/28 | 100 | 54 | -- | 54 | 54 | 54 | 44 | 44 | 0 | 0 | 54 | 54 |
| 2310 | 349 | 120 | 903 | 105 | 15 | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 24 | -- | 26 | 24 | 24 | 26 | 26 | 0 | 0 | 24 | 24 |
| 2313 | 354 | 80 | 1885 | 20 | 60 | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 13 | -- | 18 | 13 | 18 | 13 | 18 | 0 | 0 | 13 | 13 |
| 2314 | 355 | 2760 | 51304 | 1760 | 320 | -- | 680 | -- | 46 C | 03/01-02/28 | 100 | 552 | -- | 577 | 552 | 577 | 165 | 190 | 0 | 0 | 552 | 552 |
| 2315 | 356 | 1040 | 9833 | 1040 | -- | -- | -- | -- | 21 C | 03/01-02/28 | 100 | 252 | -- | 252 | 252 | 252 | 252 | 252 | 0 | 0 | 252 | 252 |
| 2317 | 358 | 320 | 1401 | 200 | 120 | -- | -- | -- | 6 C | 03/01-02/28 | 100 | 67 | -- | 78 | 67 | 78 | 67 | 78 | 0 | 0 | 67 | 67 |
| 2320 | 361 | 80 | 320 | 80 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 22 | -- | 22 | 22 | 22 | 22 | 22 | 0 | 0 | 22 | 22 |
| 2321 | 362 | 2351 | 16180 | 2351 | -- | -- | -- | -- | 24 C | 03/01-02/28 | 100 | 286 | -- | 286 | 286 | 286 | 218 | 218 | 0 | 0 | 286 | 286 |
| 2322 | 363 | 160 | 2917 | 160 | -- | -- | -- | -- | 20 S | 03/01-02/28 | 100 | 47 | -- | 47 | 47 | 47 | 47 | 47 | 0 | 0 | 47 | 47 |
| 2323 | 364 | 320 | 1908 | 320 | -- | -- | -- | -- | 5 C | 03/01-02/28 | 100 | 59 | -- | 59 | 59 | 59 | 52 | 52 | 0 | 0 | 59 | 59 |
| 2324 | 365 | 320 | 9777 | 320 | -- | -- | -- | -- | 5 C | 03/01-02/28 | 100 | 60 | -- | 60 | 60 | 60 | 60 | 60 | 0 | 0 | 60 | 60 |
| 2326 | 367 | 40 | 3640 | 20 | 20 | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 12 | -- | 14 | 12 | 14 | 12 | 14 | 0 | 0 | 12 | 12 |
| 2327 | 368 | 440 | 4040 | 440 | -- | -- | -- | -- | 11 C | 03/01-02/28 | 100 | 132 | -- | 132 | 132 | 132 | 0 | 0 | 0 | 0 | 132 | 132 |
| 2328 | 369 | 4933 | 22672 | 4843 | 90 | -- | -- | -- | 18 C | 03/01-02/28 | 100 | 212 | 2528 | 892 | 884 | 892 | 884 | 892 | 0 | 0 | 884 | 884 |
| | | | | | | | | | 400 C | 04/01-11/30 | 21 | 672 | | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 884 | 2528 | | | | | | | | | |
| 2329 | 370 | 920 | 47480 | 920 | -- | -- | -- | -- | 22 C | 03/01-02/28 | 100 | 260 | -- | 260 | 260 | 260 | 215 | 215 | 0 | 0 | 260 | 260 |
| 2330 | 371 | 1226 | 16673 | 861 | 365 | -- | -- | -- | 20 C | 03/01-02/28 | 100 | 238 | -- | 272 | 238 | 272 | 58 | 92 | 0 | 0 | 238 | 238 |
| 2340 | 383 | 200 | 224 | 95 | 105 | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 19 | -- | 28 | 19 | 28 | 17 | 26 | 0 | 0 | 19 | 19 |
| 2341 | 384 | 1520 | 2560 | 740 | -- | -- | 780 | -- | 1 C | 03/01-02/28 | 100 | 8 | -- | 328 | 328 | 328 | 207 | 207 | 0 | 0 | 328 | 328 |
| | | | | | | | | | 90 C | 05/01-09/30 | 71 | 320 | 131 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 328 | 131 | | | | | | | | | |
| 2344 | 387 | 436 | 4295 | 436 | -- | -- | -- | -- | 7 C | 03/01-02/28 | 100 | 84 | -- | 84 | 84 | 84 | 76 | 76 | 0 | 0 | 84 | 84 |
| 2346 | 481 | 240 | 1840 | 240 | -- | -- | -- | -- | 4 C | 03/01-02/28 | 100 | 48 | -- | 48 | 48 | 48 | 42 | 42 | 0 | 0 | 48 | 48 |
| 2348 | 393 | 1124 | 10268 | 1054 | -- | -- | 70 | -- | 27 C | 03/01-02/28 | 100 | 324 | -- | 324 | 324 | 324 | 324 | 324 | 0 | 0 | 324 | 324 |
| 2349 | 394 | 320 | 400 | 320 | -- | -- | -- | -- | 4 C | 03/01-02/28 | 100 | 43 | -- | 43 | 43 | 43 | 43 | 43 | 0 | 0 | 43 | 43 |
| 2350 | 395 | 1470 | 4988 | 970 | 500 | -- | -- | -- | 19 C | 03/01-02/28 | 100 | 227 | -- | 262 | 227 | 262 | 189 | 224 | 0 | 0 | 227 | 227 |
| 2352 | 397 | 638 | 880 | 638 | -- | -- | -- | -- | 11 C | 03/01-02/28 | 100 | 129 | -- | 129 | 129 | 129 | 120 | 120 | 0 | 0 | 129 | 129 |
| 2353 | 398 | 519 | 3100 | 469 | 50 | -- | -- | -- | 9 C | 03/01-02/28 | 100 | 104 | -- | 108 | 104 | 108 | 100 | 104 | 0 | 0 | 104 | 104 |
| 2357 | 479 | 632 | 5135 | 632 | -- | -- | -- | -- | 14 C | 03/01-02/28 | 100 | 168 | -- | 168 | 168 | 168 | 168 | 168 | 0 | 0 | 168 | 168 |
| 2358 | 407 | 960 | 7880 | 960 | -- | -- | -- | -- | 15 C | 03/01-02/28 | 100 | 183 | -- | 183 | 183 | 183 | 183 | 183 | 0 | 0 | 183 | 183 |
| 2361 | 410 | 160 | 6611 | 110 | 50 | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 24 | -- | 28 | 24 | 28 | 24 | 28 | 0 | 0 | 24 | 24 |
| 2363 | 411 | 554 | 10126 | 74 | 480 | -- | -- | -- | 9 C | 03/01-02/28 | 100 | 108 | -- | 151 | 108 | 151 | 0 | 38 | 0 | 0 | 108 | 108 |
| 2364 | 412 | 40 | 3718 | 40 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 9 | -- | 9 | 9 | 9 | 9 | 9 | 0 | 0 | 9 | 9 |
| 2365 | 413 | 73 | 315 | 73 | -- | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 36 | -- | 36 | 36 | 36 | 36 | 36 | 0 | 0 | 36 | 36 |
| 2366 | 414 | 40 | 8173 | -- | -- | 40 | -- | -- | 2 C | 05/01-10/31 | 100 | 11 | -- | 15 | 11 | 15 | 9 | 13 | 0 | 0 | 11 | 11 |
| 2367 | 415 | 1846 | 6587 | 1846 | -- | -- | -- | -- | 18 C | 03/01-02/28 | 100 | 213 | -- | 213 | 213 | 213 | 28 | 28 | 0 | 0 | 213 | 213 |

YEARLONG AND SEASON AND NUMBER ALLOTMENTS (cont.)

| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | | | | | PUBLIC LAND RANGE CONDITION | | | | CURRENT USE | | | PUBLIC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A ST | ALTN. A LT | ALTN. B ST | ALTN. B LT | ALTN. C ST | ALTN. C LT | ALTN. D ST | ALTN. D LT |
| 2368 | 416 | 840 | 6722 | 730 | 110 | — | -- | — | 18 C | 03/01-02-28 | 100 | 216 | — | 225 | 216 | 225 | 210 | 210 | 0 | 0 | 216 | 216 |
| 2369 | 117 | 480 | 19000 | 480 | -- | -- | -- | -- | 8 C | 03/01-02/28 | 100 | 96 | -- | 96 | 96 | 96 | 96 | 96 | 0 | 0 | 96 | 96 |
| 2370 | 418 | 200 | 1720 | 100 | 100 | -- | -- | -- | 5 C | 03/01-02/28 | 100 | 57 | -- | 66 | 57 | 66 | 48 | 57 | 0 | 0 | 57 | 57 |
| 2372 | 420 | 440 | 3356 | 440 | -- | -- | -- | -- | 7 C | 03/01-02/28 | 100 | 88 | -- | 88 | 88 | 88 | 85 | 85 | 0 | 0 | 88 | 88 |
| 2376 | 424 | 1589 | 1907 | 1589 | -- | -- | -- | -- | 44 C | 03/01-02/28 | 100 | 534 | -- | 586 | 534 | 586 | 531 | 583 | 0 | 0 | 534 | 534 |
| 2383 | 429 | 1281 | 13271 | 961 | — | -- | 320 | — | 14 C | 03/01-02/28 | 100 | 173 | — | 173 | 173 | 173 | 11 | 11 | 0 | 0 | 173 | 173 |
| 2385 | 142 | 7582 | 22499 | 6555 | 1027 | — | -- | -- | 146 C | 03/01-02/28 | 100 | 1748 | -- | 1800 | 1748 | 1800 | 1428 | 1480 | 0 | 0 | 1748 | 1748 |
| 2386 | 475 | 240 | 1440 | 240 | -- | -- | -- | — | 5 C | 03/01-02/28 | 100 | 57 | — | 57 | 57 | 57 | 57 | 57 | 0 | 0 | 57 | 57 |
| 2387 | 476 | 40 | 812 | 40 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 9 | -- | 9 | 9 | 9 | 8 | 8 | 0 | 0 | 9 | 9 |
| 2388 | 477 | 138 | 1960 | 138 | -- | -- | -- | — | 3 C | 03/01-02/28 | 100 | 34 | -- | 34 | 34 | 34 | 28 | 28 | 0 | 0 | 34 | 34 |
| 2389 | 478 | 320 | 2400 | 320 | -- | -- | -- | -- | 7 C | 03/01-02/28 | 100 | 86 | -- | 86 | 86 | 86 | 82 | 82 | 0 | 0 | 86 | 86 |
| 2500 | 1 | 40 | 2520 | 40 | -- | -- | -- | — | 1 C | 03/01-02/28 | 100 | 10 | -- | 10 | 10 | 10 | 10 | 10 | 0 | 0 | 10 | 10 |
| 2501 | 2 | 960 | 3200 | 960 | -- | -- | -- | -- | 10 C | 06/01-11/30 | 100 | 60 | -- | 157 | 60 | 157 | 60 | 157 | 0 | 0 | 60 | 60 |
| 2669* | 167 | 320 | 3249 | 320 | -- | -- | -- | -- | 95 C | 03/01-02/28 | 8 | 92 | 1048 | 97 | 97 | 97 | 97 | 97 | 0 | 0 | 97 | 97 |
| | | | | | | | | | 54 C | 03/01-02/28 | 8 | 5 | 8 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 157 | 8 | | | | | | | | | |
| 2502 | 3 | 160 | 230 | 160 | -- | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 38 | -- | 38 | 38 | 38 | 38 | 38 | 0 | 0 | 38 | 38 |
| 2503 | 4 | 80 | 1200 | 40 | 10 | -- | — | 30 | 2 C | 03/01-02/28 | 100 | 24 | — | 28 | 24 | 28 | 24 | 28 | 0 | 0 | 24 | 24 |
| 2504 | 5 | 200 | 680 | 200 | -- | — | -- | -- | 4 C | 03/01-02/28 | 100 | 50 | -- | 50 | 50 | 50 | 0 | 0 | 0 | 0 | 50 | 50 |
| 2505 | 6 | 320 | 3840 | 280 | 40 | -- | — | — | 95 C | 03/01-02/28 | 9 | 103 | 1041 | 109 | 105 | 109 | 105 | 109 | 0 | 0 | 105 | 105 |
| | | | | | | | | | 1 H | 03/01-02/28 | 9 | 2 | 20 | | | | | | | | | |
| | 171 | 160 | 2944 | 160 | -- | -- | — | — | 47 C | 03/01-02/28 | 9 | 51 | 513 | 65 | 52 | 65 | 52 | 65 | 0 | 0 | 52 | 52 |
| | | | | | | | | | 1 H | 03/01-02/28 | 9 | 1 | 11 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 157 | 1585 | | | | | | | | | |
| 2506 | 7 | 520 | 10357 | 315 | 160 | — | -- | 45 | 8 C | 03/01-02/28 | 100 | 95 | -- | 113 | 95 | 113 | 53 | 71 | 0 | 0 | 95 | 95 |
| 2507 | 8 | 786 | 9120 | 348 | 240 | — | -- | 198 | 14 C | 03/01-02/28 | 100 | 168 | -- | 215 | 168 | 215 | 49 | 96 | 0 | 0 | 168 | 168 |
| 2508 | 9 | 4990 | 9189 | 3035 | 351 | -- | -- | 1604 | 310 C | 04/01-02/28 | 29 | 989 | 2421 | 1540 | 1309 | 1540 | 1117 | 1348 | 0 | 0 | 1309 | 1309 |
| | | | | | | | | | 230 Y | 04/15-09/15 | 29 | 250 | 612 | | | | | | | | | |
| | | | | | | | | | 40 Y | 04/15-11/15 | 29 | 61 | 149 | | | | | | | | | |
| | | | | | | | | | 15 C | 06/20-08/20 | 29 | 9 | 21 | | | | | | | | | |
| | | | | | | | | | | TOTAL | 116 | 1309 | 3203 | | | | | | | | | |
| 2509 | 10 | 2480 | 16339 | 2020 | -- | — | -- | 460 | 49 C | 03/01-02/28 | 100 | 587 | -- | 645 | 587 | 645 | 558 | 616 | 0 | 0 | 587 | 587 |
| 2510 | 11 | 40 | 1920 | -- | 40 | -- | — | — | 1 C | 03/01-02/28 | 100 | 12 | — | 16 | 12 | 16 | 12 | 16 | 0 | 0 | 12 | 12 |
| 2511 | 12 | 200 | 2726 | 140 | 40 | — | -- | 20 | 5 C | 03/01-02/28 | 100 | 60 | — | 67 | 60 | 67 | 60 | 67 | 0 | 0 | 60 | 60 |
| 2512 | 13 | 240 | 2560 | — | 40 | -- | — | 200 | 5 C | 03/01-02/28 | 100 | 60 | — | 112 | 60 | 122 | 57 | 109 | 0 | 0 | 60 | 60 |
| 2513 | 14 | 3300 | 7537 | 3006 | 294 | -- | -- | -- | 354 C | 05/15-11/01 | 54 | 1050 | 894 | 1077 | 1050 | 1077 | 1041 | 1068 | 0 | 0 | 1050 | 1050 |
| 2515 | 16 | 620 | 1600 | 390 | -- | -- | -- | 230 | 18 C | 03/01-02/28 | 100 | 165 | -- | 165 | 165 | 165 | 164 | 164 | 0 | 0 | 165 | 165 |
| 2516 | 17 | 1563 | 7191 | 1416 | 147 | — | -- | -- | 37 C | 03/01-02/28 | 100 | 442 | -- | 451 | 442 | 451 | 385 | 404 | 0 | 0 | 442 | 442 |
| 2677 | 175 | 720 | 4347 | 682 | -- | -- | — | 38 | 160 C | 03/01-02/28 | 11 | 212 | 1708 | 221 | 216 | 221 | 216 | 221 | 0 | 0 | 216 | 216 |
| | | | | | | | | | 3 H | 03/01-02/28 | 11 | 4 | 32 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 658 | 1740 | | | | | | | | | |
| 2517 | 18 | 2316 | 8002 | 1548 | 768 | -- | -- | -- | 28 C | 03/01-02/28 | 100 | 334 | — | 359 | 334 | 359 | 13 | 38 | 0 | 0 | 334 | 334 |
| 2518 | 19 | 640 | 2400 | 422 | — | -- | -- | 218 | 18 C | 03/01-02/28 | 100 | 164 | -- | 192 | 164 | 192 | 160 | 188 | 0 | 0 | 164 | 164 |

YEARLONG AND SEASON AND NUMBER ALLOTMENTS (cont.)

| | | | | PUBLIC LAND RANGE CONDITION | | | | | | | | CURRENT USE | | | PUBLIC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A | | ALTN. B | | ALTN. C | | ALTN. D | |
| | | | | | | | | | | | | | | | ST | LT | ST | LT | ST | LT | ST | LT |
| 2519 | 20 | 440 | 8440 | 146 | 64 | -- | -- | 230 | 10 C | 03/01-02/28 | 100 | 120 | -- | 154 | 120 | 154 | 120 | 154 | 0 | 0 | 120 | 120 |
| 2520 | 21 | 320 | 3400 | -- | 45 | -- | -- | 275 | 8 C | 03/01-02/28 | 100 | 100 | -- | 139 | 100 | 139 | 100 | 139 | 0 | 0 | 100 | 100 |
| 2521 | 22 | 800 | 4304 | 77 | 237 | -- | -- | 486 | 15 C | 03/01-02/28 | 100 | 185 | -- | 267 | 185 | 267 | 0 | 0 | 0 | 0 | 185 | 185 |
| 2522 | 23 | 720 | 1200 | 720 | -- | -- | -- | -- | 18 C | 03/01-02/28 | 100 | 185 | -- | 249 | 185 | 249 | 182 | 246 | 0 | 0 | 185 | 185 |
| 2523 | 24 | 80 | 1120 | -- | -- | -- | -- | 80 | 2 C | 03/01-02/28 | 100 | 20 | -- | 20 | 20 | 20 | 20 | 20 | 0 | 0 | 20 | 20 |
| 2524 | 25 | 160 | 2656 | 160 | -- | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 38 | -- | 38 | 38 | 38 | 38 | 38 | 0 | 0 | 38 | 38 |
| 2525 | 26 | 40 | 1280 | 40 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 5 | -- | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 5 |
| 2526 | 27 | 1440 | 4000 | 435 | 236 | -- | 51 | 718 | 8 C | 03/01-02/28 | 100 | 96 | -- | 559 | 447 | 557 | 447 | 559 | 0 | 0 | 447 | 447 |
| | | | | | | | | | 113 C | 05/05-09/04 | 71 | 322 | 130 | | | | | | | | | |
| | | | | | | | | | 95 C | 11/01-11/13 | 71 | 29 | 12 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 447 | 142 | | | | | | | | | |
| 2527 | 28 | 630 | 1920 | 164 | 166 | -- | -- | 300 | 56 C | 05/15-08/14 | 100 | 168 | -- | 221 | 168 | 221 | 168 | 221 | 0 | 0 | 168 | 168 |
| 2711* | 209 | 160 | 1010 | 160 | -- | -- | -- | -- | 4 C | 03/01-02/28 | 100 | 43 | -- | 43 | 43 | 43 | 43 | 43 | 0 | 0 | 43 | 43 |
| | | | | | | | | | | TOTAL | | 211 | | | | | | | | | | |
| 2528 | 29 | 1280 | 1487 | 904 | -- | -- | 58 | 318 | 81 C | 03/01-02/28 | 36 | 351 | 621 | 401 | 361 | 401 | 361 | 401 | 0 | 0 | 361 | 361 |
| | | | | | | | | | 2 H | 03/01-02/28 | 36 | 10 | 14 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 361 | 635 | | | | | | | | | |
| 2529 | 30 | 600 | 4120 | 331 | 269 | -- | -- | -- | 13 C | 03/01-02/28 | 100 | 114 | 114 | 114 | 114 | 114 | 114 | 114 | 0 | 0 | 114 | 114 |
| 2530 | 31 | 960 | 3840 | 960 | -- | -- | -- | -- | 28 C | 09/01-12/31 | 100 | 114 | -- | 114 | 114 | 114 | 114 | 114 | 0 | 0 | 114 | 114 |
| 2531 | 32 | 280 | 5440 | 130 | -- | -- | -- | 150 | 7 C | 03/01-02/28 | 100 | 87 | -- | 106 | 87 | 106 | 87 | 106 | 0 | 0 | 87 | 87 |
| 2532 | 33 | 1600 | 3387 | 960 | 640 | -- | -- | -- | 80 C | 06/01-09/30 | 58 | 186 | 134 | 528 | 470 | 528 | 454 | 512 | 0 | 0 | 470 | 470 |
| | | | | | | | | | 61 C | 04/01-11/30 | 58 | 284 | 204 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 470 | 338 | | | | | | | | | |
| 2534 | 35 | 1280 | 1440 | 634 | 244 | -- | 154 | 248 | 27 C | 03/01-02/28 | 100 | 322 | -- | 375 | 322 | 375 | 309 | 362 | 0 | 0 | 322 | 322 |
| 2535 | 36 | 576 | 3065 | 576 | -- | -- | -- | -- | 200 C | 06/01-10/15 | 19 | 171 | 729 | 171 | 171 | 171 | 171 | 171 | 0 | 0 | 171 | 171 |
| 2536 | 37 | 720 | 4400 | 410 | 48 | -- | -- | 262 | 98 C | 03/02-02/28 | 15 | 176 | 1000 | 190 | 180 | 190 | 38 | 48 | 0 | 0 | 180 | 180 |
| | | | | | | | | | 2 H | 03/01-02/28 | 15 | 4 | 20 | | | | | | | | | |
| 2679* | 177 | 1920 | 8640 | 1920 | -- | -- | -- | -- | 259 C | 03/01-02/28 | 15 | 466 | 2642 | 498 | 470 | 498 | 470 | 498 | 0 | 0 | 470 | 470 |
| | | | | | | | | | 2 H | 03/01-02/28 | 15 | 4 | 20 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 650 | 3792 | | | | | | | | | |
| 2537 | 38 | 320 | 2245 | 320 | -- | -- | -- | -- | 6 C | 03/01-02/28 | 100 | 73 | -- | 73 | 73 | 73 | 0 | 0 | 0 | 0 | 73 | 73 |
| 2538 | 39 | 797 | 1267 | 797 | -- | -- | -- | -- | 14 C | 03/01-02/28 | 100 | 162 | -- | 162 | 162 | 162 | 149 | 149 | 0 | 0 | 162 | 162 |
| 2540 | 41 | 80 | 955 | -- | -- | -- | 40 | 40 | 1 C | 03/01-02/28 | 100 | 16 | -- | 21 | 16 | 21 | 16 | 21 | 0 | 0 | 16 | 16 |
| 2541 | 42 | 640 | 4750 | 480 | 160 | -- | -- | -- | 14 C | 03/01-02/28 | 100 | 164 | -- | 178 | 164 | 178 | 164 | 178 | 0 | 0 | 164 | 164 |
| 2542 | 43 | 40 | 1520 | -- | 40 | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 12 | -- | 16 | 12 | 16 | 12 | 12 | 0 | 0 | 12 | 12 |
| 2543 | 44 | 1440 | 3360 | 1112 | 40 | -- | -- | 288 | 31 C | 03/02-02/28 | 100 | 376 | -- | 416 | 376 | 416 | 84 | 124 | 0 | 0 | 376 | 376 |
| 2544 | 45 | 80 | 2401 | 80 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 22 | -- | 22 | 22 | 22 | 22 | 22 | 0 | 0 | 22 | 22 |
| 2545 | 46 | 1920 | 6535 | 1766 | 77 | -- | -- | 77 | 41 C | 03/01-02/28 | 100 | 492 | -- | 504 | 492 | 504 | 212 | 224 | 0 | 0 | 492 | 492 |
| 2546 | 47 | 320 | 1766 | -- | 70 | -- | -- | 250 | 8 C | 03/01-02/28 | 100 | 96 | -- | 134 | 96 | 134 | 93 | 131 | 0 | 0 | 96 | 96 |
| 2548 | 49 | 403 | 4784 | 373 | 30 | -- | -- | -- | 7 C | 03/01-02/28 | 100 | 87 | -- | 89 | 87 | 89 | 78 | 80 | 0 | 0 | 87 | 87 |
| 2552 | 53 | 640 | 5322 | 307 | 301 | -- | -- | 32 | 57 C | 03/01-02/28 | 18 | 123 | 560 | 128 | 123 | 128 | 123 | 128 | 0 | 0 | 123 | 123 |
| 2689* | 187 | 640 | -- | 640 | -- | -- | -- | -- | 99 C | 03/01-02/28 | 18 | 214 | 974 | 224 | 214 | 224 | 214 | 224 | 0 | 0 | 214 | 214 |
| | | | | | | | | | | TOTAL | | 337 | 1534 | | | | | | | | | |
| 2553 | 54 | 320 | 6720 | 320 | -- | -- | -- | -- | 58 C | 03/01-02/28 | 9 | 63 | 637 | 64 | 64 | 64 | 64 | 64 | 0 | 0 | 64 | 64 |
| | | | | | | | | | 1 H | 03/01-02/28 | 9 | 1 | 10 | | | | | | | | | |
| 2688* | 186 | 960 | -- | 960 | -- | -- | -- | -- | 206 C | 03/01-02/28 | 9 | 223 | 2248 | 225 | 225 | 225 | 225 | 225 | 0 | 0 | 225 | 225 |
| | | | | | | | | | 1 H | 03/01-02/28 | 9 | 2 | 11 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 289 | 2906 | | | | | | | | | |

YEARLONG AND SEASON AND NUMBER ALLOTMENTS (cont.)

| | | | | | | | | PUBLIC LAND RANGE CONDITION | | | | CURRENT USE | | | | | PUBLIC | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | ALTN. A | | ALTN. B | | ALTN. C | | ALTN. D | |
| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ST | LT | ST | LT | ST | LT | ST | LT |
| 2554 | 55 | 320 | 3640 | 320 | -- | -- | -- | -- | 7 C | 03/01-02/28 | 100 | 84 | -- | 84 | 84 | 84 | 84 | 84 | 0 | 0 | 84 | 84 |
| 2556 | 57 | 320 | 3520 | 275 | 45 | -- | — | — | 3 C | 03/01-02/28 | 100 | 41 | -- | 42 | 41 | 42 | 36 | 37 | 0 | 0 | 41 | 41 |
| 2557 | 58 | 360 | 16836 | 90 | -- | -- | -- | 270 | 7 C | 03/01-02/28 | 100 | 88 | — | 122 | 88 | 122 | 86 | 120 | 0 | 0 | 88 | 88 |
| 2796 | 292 | 2241 | 2882 | 2171 | 70 | -- | -- | — | 38 C | 03/01-02/28 | 100 | 455 | -- | 459 | 455 | 459 | 431 | 435 | 0 | 0 | 455 | 455 |
| | | | | | | | | | | TOTAL | | 543 | | | | | | | | | | |
| 2559 | 60 | 222 | 2640 | — | 222 | -- | -- | — | 6 C | 03/01-02/28 | 100 | 56 | — | 76 | 56 | 76 | 56 | 76 | 0 | 0 | 56 | 56 |
| 2560 | 61 | 488 | 6836 | 142 | 26 | — | 320 | — | 78 C | 03/01-02/28 | 13 | 122 | 816 | 129 | 128 | 129 | 128 | 129 | 0 | 0 | 128 | 128 |
| | | | | | | | | | 3 H | 03/01-02/28 | 13 | 6 | 40 | | | | | | | | | |
| 2690 | 188 | 142 | | 142 | -- | -- | -- | -- | 21 C | 03/01-02/28 | 13 | 33 | 219 | 34 | 34 | 34 | 34 | 34 | 0 | 0 | 34 | 34 |
| | | | | | | | | | 1 H | 03/01-02/28 | 13 | 1 | 11 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 162 | 1086 | | | | | | | | | |
| 2561 | 62 | 640 | 320 | 640 | — | -- | -- | — | 14 C | 03/01-02/28 | 100 | 174 | — | 174 | 174 | 174 | 174 | 174 | 0 | 0 | 174 | 174 |
| 2562 | 63 | 440 | 5035 | 357 | -- | — | -- | 83 | 8 C | 03/01-02/28 | 100 | 174 | -- | 174 | 174 | 174 | 174 | 174 | 0 | 0 | 174 | 174 |
| 2692 | 190 | 640 | 6100 | 640 | -- | -- | — | — | 40 C | 05/01-08/15 | 100 | 142 | — | 142 | 142 | 142 | 35 | 35 | 0 | 0 | 142 | 142 |
| | | | | | | | | | | TOTAL | | 316 | | | | | | | | | | |
| 2563 | 64 | 2237 | 2880 | 2045 | -- | -- | — | 192 | 23 C | 03/01-02/28 | 100 | 273 | -- | 675 | 651 | 675 | 651 | 675 | 0 | 0 | 651 | 651 |
| | | | | | | | | | 60 Y | 05/01-09/15 | 100 | 174 | | | | | | | | | | |
| | | | | | | | | | 40 C | 06/15-08/15 | 100 | 82 | | | | | | | | | | |
| | | | | | | | | | 130 C | 10/20-12/17 | 10 | 122 | 129 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 651 | 129 | | | | | | | | | |
| 2564 | 65 | 200 | 2160 | 100 | -- | -- | -- | 100 | 5 C | 03/01-02/28 | 100 | 60 | -- | 73 | 60 | 73 | 60 | 73 | 0 | 0 | 60 | 60 |
| 2565 | 66 | 581 | 2772 | 347 | — | 164 | — | 70 | 12 C | 03/01-02/28 | 100 | 120 | — | 189 | 120 | 189 | 36 | 105 | 0 | 0 | 120 | 120 |
| 2566 | 67 | 2770 | 3640 | 2451 | 319 | — | -- | -- | 339 C | 06/15-09/15 | 34 | 346 | 672 | 375 | 346 | 375 | 344 | 373 | 0 | 0 | 346 | 346 |
| 2567 | 68 | 400 | 2400 | 214 | — | -- | — | 186 | 9 C | 03/01-02/28 | 100 | 106 | — | 130 | 106 | 130 | 95 | 119 | 0 | 0 | 106 | 106 |
| 2570 | 71 | 800 | 10800 | 723 | -- | -- | -- | 77 | 16 C | 03/01-02/28 | 100 | 194 | -- | 203 | 194 | 203 | 194 | 203 | 0 | 0 | 194 | 194 |
| 2571 | 72 | 1097 | 2520 | 713 | -- | -- | -- | 384 | 20 C | 03/01-02/28 | 100 | 243 | -- | 291 | 243 | 291 | 135 | 183 | 0 | 0 | 243 | 243 |
| 2572 | 73 | 318 | 3443 | — | 318 | -- | — | — | 8 C | 03/01-02/28 | 100 | 96 | -- | 124 | 96 | 124 | 95 | 123 | 0 | 0 | 96 | 96 |
| 2573 | 74 | 1920 | 1120 | 1504 | 416 | — | -- | -- | 35 C | 05/15-09/14 | 30 | 42 | 98 | 47 | 42 | 47 | 42 | 47 | 0 | 0 | 42 | 42 |
| 2574 | 74 | — | | | | IN | #2573 | 74 | 60 C | 05/15-09/14 | 30 | 72 | 168 | 82 | 72 | 82 | 70 | 80 | 0 | 0 | 72 | 72 |
| 2575 | 75 | 1557 | 7611 | 930 | 224 | -- | 320 | 83 | 34 C | 03/01-02/28 | 100 | 408 | -- | 428 | 408 | 428 | 301 | 321 | 0 | 0 | 408 | 408 |
| 2577 | 77 | 760 | 4742 | 760 | -- | -- | -- | — | 12 C | 03/01-02/28 | 100 | 145 | -- | 145 | 145 | 145 | 145 | 145 | 0 | 0 | 145 | 145 |
| 2715* | 213 | 160 | | 160 | -- | -- | -- | -- | 4 C | 03/01-02/28 | 100 | 42 | -- | 42 | 42 | 42 | 39 | 39 | 0 | 0 | 42 | 42 |
| | | | | | | | | | | TOTAL | | 187 | | | | | | | | | | |
| 2578 | 78 | 640 | 6960 | 640 | — | -- | -- | -- | 14 C | 03/01-02/28 | 100 | 164 | -- | 164 | 164 | 164 | 164 | 164 | 0 | 0 | 164 | 164 |
| 2579 | 79 | 320 | 943 | -- | 40 | -- | — | 280 | 21 C | 05/01-09/15 | 100 | 95 | -- | 106 | 95 | 106 | 95 | 106 | 0 | 0 | 95 | 95 |
| 2580 | 80 | 160 | 3069 | 77 | -- | -- | -- | 83 | 5 C | 03/01-02/18 | 100 | 55 | -- | 94 | 55 | 94 | 55 | 94 | 0 | 0 | 55 | 55 |
| 2581 | 81 | 1935 | 3266 | 1813 | 39 | — | 83 | -- | 127 C | 06/01-11/01 | 39 | 265 | 414 | 268 | 265 | 268 | 246 | 249 | 0 | 0 | 265 | 265 |
| 2582 | 82 | 1411 | 2960 | 744 | 667 | -- | — | -- | 26 C | 03/01-02/28 | 100 | 319 | -- | 381 | 319 | 381 | 273 | 335 | 0 | 0 | 319 | 319 |
| 2583 | 83 | 143 | 3968 | — | 143 | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 37 | — | 66 | 37 | 66 | 37 | 66 | 0 | 0 | 37 | 37 |
| 2584 | 84 | 320 | 960 | -- | 230 | — | -- | 90 | 7 C | 03/01-02/28 | 100 | 83 | — | 115 | 83 | 115 | 83 | 115 | 0 | 0 | 83 | 83 |
| 2585 | 85 | 640 | 1920 | 497 | 143 | -- | -- | — | 9 C | 03/01-02/28 | 100 | 110 | — | 123 | 110 | 123 | 109 | 122 | 0 | 0 | 110 | 110 |
| 2586 | 86 | 440 | 2592 | 357 | 83 | -- | -- | -- | 6 C | 03/01-02/28 | 100 | 76 | -- | 84 | 76 | 84 | 71 | 79 | 0 | 0 | 76 | 76 |
| 2587 | 87 | 360 | 1160 | 264 | 96 | -- | — | — | 7 C | 03/01-02/28 | 100 | 80 | -- | 89 | 80 | 89 | 73 | 82 | 0 | 0 | 80 | 80 |
| 2588 | 88 | 1000 | 23200 | 680 | -- | -- | 320 | — | 20 C | 03/01-02/28 | 100 | 238 | -- | 238 | 238 | 238 | 210 | 210 | 0 | 0 | 238 | 238 |
| 2589 | 89 | 320 | 1600 | 186 | — | — | — | 134 | 8 C | 03/01-02/28 | 100 | 97 | — | 114 | 97 | 114 | 97 | 114 | 0 | 0 | 97 | 97 |
| 2592 | 92 | 1260 | 3840 | 1126 | -- | -- | -- | 134 | 1 C | 03/01-02/28 | 100 | 5 | — | 338 | 321 | 338 | 58 | 75 | 0 | 0 | 321 | 321 |
| | | | | | | | | | 300 S | 12/01-03/31 | 66 | 158 | 82 | | | | | | | | | |
| | | | | | | | | | 51 C | 05/01-06/15 | 100 | 76 | -- | | | | | | | | | |
| | | | | | | | | | 55 C | 06/16-07/31 | 100 | 82 | -- | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 321 | 82 | | | | | | | | | |

YEARLONG AND SEASON AND NUMBER ALLOTMENTS (cont.)

| | | | | | | | | PUBLIC LAND RANGE CONDITION | | | | CURRENT USE | | | PUBLIC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | SEASON | $ PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A ST | ALTN. A LT | ALTN. B ST | ALTN. B LT | ALTN. C ST | ALTN. C LT | ALTN. D ST | ALTN. D LT |
| 2593 | 93 | 40 | 1520 | -- | -- | -- | 40 | -- | 1 C | 03/01-02/28 | 100 | 12 | -- | 12 | 12 | 12 | 12 | 12 | 0 | 0 | 12 | 12 |
| 2594 | 94 | 4053 | 3972 | 3797 | 256 | -- | -- | -- | 250 C | 06/10-09/10 | 45 | 345 | 422 | 368 | 345 | 368 | 281 | 304 | 0 | 0 | 345 | 345 |
| 2595 | 95 | 3053 | 12317 | 1792 | 314 | -- | 27 | 920 | 62 C | 03/01-02/28 | 100 | 744 | -- | 887 | 744 | 887 | 0 | 104 | 0 | 0 | 744 | 744 |
| 2596 | 96 | 819 | 5378 | 602 | 147 | -- | -- | 70 | 15 C | 03/01-02/28 | 100 | 180 | -- | 202 | 180 | 202 | 140 | 162 | 0 | 0 | 180 | 180 |
| 2597 | 97 | 729 | 3385 | 149 | 500 | -- | 80 | -- | 15 C | 03/01-02/28 | 100 | 178 | -- | 223 | 178 | 223 | 178 | 223 | 0 | 0 | 178 | 178 |
| 2598 | 98 | 160 | 2720 | 130 | 30 | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 24 | -- | 25 | 24 | 25 | 23 | 24 | 0 | 0 | 24 | 24 |
| 2599 | 99 | 115 | 1600 | 25 | -- | -- | 77 | 13 | 3 C | 03/01-02/28 | 100 | 38 | -- | 40 | 38 | 40 | 38 | 40 | 0 | 0 | 38 | 38 |
| 2600 | 100 | 120 | 2400 | 120 | -- | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 34 | -- | 34 | 34 | 34 | 34 | 34 | 0 | 0 | 34 | 34 |
| 2601 | 101 | 320 | 3524 | -- | 300 | -- | -- | 20 | 15 C | 05/15-11/17 | 100 | 92 | -- | 122 | 92 | 122 | 57 | 87 | 0 | 0 | 92 | 92 |
| 2602 | 102 | 3530 | 4267 | 3260 | 270 | -- | -- | -- | 20 H | 03/01-02/28 | 37 | 89 | 151 | 986 | 962 | 986 | 943 | 967 | 0 | 0 | 962 | 962 |
| | | | | | | | | | 218 C | 04/15-11/14 | 37 | 564 | 962 | | | | | | | | | |
| | | | | | | | | | 120 C | 04/15-11/14 | 100 | 160 | -- | | | | | | | | | |
| | | | | | | | | | 30 C | 06/20-11/18 | 100 | 149 | -- | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 962 | 1113 | | | | | | | | | |
| 2603 | 103 | 320 | - | 320 | -- | -- | -- | 90 | 52 C | 03/01-02/28 | 15 | 93 | 527 | 143 | 93 | 143 | 0 | 49 | 0 | 0 | 93 | 93 |
| 2604 | 104 | 280 | 2360 | -- | 164 | -- | 26 | -- | 6 C | 03/01-02/28 | 100 | 72 | -- | 100 | 72 | 100 | 72 | 100 | 0 | 0 | 72 | 72 |
| 2605 | 105 | 235 | 4877 | 235 | -- | -- | -- | 360 | 6 C | 03/01-02/28 | 100 | 72 | -- | 72 | 72 | 72 | 72 | 72 | 0 | 0 | 72 | 72 |
| 2606 | 106 | 1800 | 11121 | 1400 | -- | -- | 40 | 220 | 45 C | -3/01-02/28 | 100 | 540 | -- | 585 | 540 | 585 | 346 | 391 | 0 | 0 | 540 | 540 |
| 2607 | 107 | 1280 | 3840 | 1060 | -- | -- | -- | -- | 26 C | 03/01-02/28 | 100 | 309 | -- | 337 | 309 | 337 | 298 | 326 | 0 | 0 | 309 | 309 |
| 2608 | 108 | 160 | 5099 | 160 | -- | -- | -- | -- | 3 C | 03/01-02/18 | 100 | 39 | -- | 39 | 39 | 39 | 39 | 39 | 0 | 0 | 39 | 39 |
| 2609 | 74 | -- | 960 | | | In # | 2573-74 | | 73 C | 05/15-09/14 | 30 | 88 | 205 | 99 | 88 | 99 | 88 | 99 | 0 | 0 | 88 | 88 |
| 2610 | 74 | -- | 960 | | | In # | 2573-74 | 518 | 73 C | 05/15-09/14 | 30 | 88 | 205 | 99 | 88 | 99 | 88 | 99 | 0 | 0 | 88 | 88 |
| 2611 | 109 | 1250 | 9224 | 539 | 711 | -- | -- | -- | 16 C | 03/01-02/28 | 100 | 190 | -- | 223 | 190 | 223 | 165 | 198 | 0 | 0 | 190 | 190 |
| 2612 | 110 | 1299 | 36360 | 781 | -- | -- | -- | | 27 C | 03/01-02/28 | 100 | 324 | -- | 389 | 324 | 389 | 146 | 211 | 0 | 0 | 324 | 324 |
| 2613 | 111 | 320 | 1500 | 320 | -- | -- | -- | -- | 7 C | 03/01-02/28 | 100 | 84 | -- | 84 | 84 | 84 | 84 | 84 | 0 | 0 | 84 | 84 |
| 2614 | 112 | 60 | 2565 | 40 | -- | -- | -- | 20 | 1 C | 03/01-02/28 | 100 | 12 | -- | 15 | 12 | 15 | 12 | 15 | 0 | 0 | 12 | 12 |
| 2615 | 113 | 2080 | 6918 | 1850 | 70 | -- | -- | 160 | 32 C | 03/01-02/28 | 100 | 382 | -- | 408 | 382 | 408 | 328 | 354 | 0 | 0 | 382 | 382 |
| 2616 | 114 | 160 | 1840 | 80 | -- | -- | -- | 80 | 3 C | 03/01-02/28 | 100 | 38 | -- | 48 | 38 | 48 | 38 | 48 | 0 | 0 | 38 | 38 |
| 2617 | 115 | 400 | 287 | -- | 70 | -- | -- | 330 | 39 C | 05/01-08/01 | 100 | 119 | -- | 167 | 119 | 167 | 119 | 167 | 0 | 0 | 119 | 119 |
| 2618 | 116 | 274 | 382 | 127 | -- | -- | -- | 147 | 8 C | 03/01-02/28 | 100 | 93 | -- | 112 | 93 | 112 | 93 | 112 | 0 | 0 | 93 | 93 |
| 2619 | 117 | 628 | 2869 | 628 | -- | -- | -- | -- | 14 C | 03/01-02/28 | 100 | 170 | -- | 170 | 170 | 170 | 170 | 170 | 0 | 0 | 170 | 170 |
| 2620 | 118 | 40 | 1360 | -- | -- | -- | 40 | -- | 1 C | 03/01-02/28 | 100 | 9 | -- | 9 | 9 | 9 | 9 | 9 | 0 | 0 | 9 | 9 |
| 2621 | 119 | 40 | 1560 | -- | 40 | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 10 | -- | 14 | 10 | 14 | 10 | 14 | 0 | 0 | 10 | 10 |
| 2622 | 120 | 760 | 6080 | -- | 120 | -- | 640 | -- | 12 C | 03/01-02/28 | 100 | 143 | -- | 154 | 143 | 154 | 54 | 65 | 0 | 0 | 143 | 143 |
| 2623 | 121 | 840 | 17180 | 324 | 516 | -- | -- | -- | 17 C | 03/01-02/28 | 100 | 199 | -- | 244 | 199 | 244 | 30 | 75 | 0 | 0 | 199 | 199 |
| 3038* | 528 | 640 | 1280 | 640 | -- | -- | -- | -- | 8 C | 03/01-02/28 | 100 | 96 | -- | 96 | 96 | 96 | 40 | 40 | 0 | 0 | 96 | 96 |
| | | | | | | | | | | TOTAL | | 295 | -- | | | | | | | | | |
| 2625 | 123 | 181 | 2431 | 31 | 120 | -- | 30 | -- | 4 C | 03/03-02/28 | 100 | 44 | -- | 55 | 44 | 55 | 44 | 55 | 0 | 0 | 44 | 44 |
| 2627 | 125 | 320 | 1449 | 200 | -- | -- | -- | 120 | 6 C | 03/01-02/28 | 100 | 72 | -- | 87 | 72 | 87 | 72 | 87 | 0 | 0 | 72 | 72 |
| 2628 | 126 | 545 | 2560 | 173 | 372 | -- | -- | -- | 15 C | 05/01-10/31 | 100 | 92 | -- | 125 | 92 | 125 | 92 | 125 | 0 | 0 | 92 | 92 |
| 2629 | 127 | 240 | 1680 | 140 | 20 | -- | -- | 80 | 35 C | 05/01-11/01 | 32 | 67 | 142 | 79 | 67 | 79 | 67 | 79 | 0 | 0 | 67 | 67 |
| 2630 | 128 | 640 | 1400 | 256 | 192 | -- | -- | 192 | 14 C | 03/01-02/28 | 100 | 168 | -- | 224 | 168 | 224 | 160 | 216 | 0 | 0 | 168 | 168 |
| 2631 | 129 | 1040 | 4844 | 584 | 26 | -- | -- | 430 | 23 C | 03/01-02/28 | 100 | 268 | -- | 324 | 268 | 324 | 162 | 218 | 0 | 0 | 268 | 268 |
| 2632 | 130 | 320 | 6560 | -- | 160 | -- | -- | 160 | 7 C | 03/01-02/28 | 100 | 84 | -- | 138 | 84 | 138 | 84 | 138 | 0 | 0 | 84 | 84 |
| 2633 | 131 | 1280 | 2720 | 896 | 320 | -- | -- | 64 | 24 C | 03/01-02/28 | 100 | 289 | -- | 326 | 289 | 326 | 266 | 303 | 0 | 0 | 289 | 289 |
| 2634 | 132 | 218 | 6631 | 173 | 45 | -- | -- | -- | 7 C | 05/01-09/30 | 100 | 34 | -- | 38 | 34 | 38 | 34 | 38 | 0 | 0 | 34 | 34 |
| 2635 | 133 | 1120 | 2400 | 192 | 70 | -- | 77 | 781 | 100 C | 04/09-05/10 | 100 | 107 | -- | 463 | 360 | 463 | 360 | 463 | 0 | 0 | 360 | 360 |
| | | | | | | | | | 315 S | 05/01-08/30 | 100 | 253 | -- | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 360 | -- | | | | | | | | | |

YEARLONG AND SEASON AND NUMBER ALLOTMENTS (cont.)

| | | | | | | | | PUBLIC LAND RANGE CONDITION | | | | CURRENT USE | | | PUBLIC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | SEASON | $ PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A ST | ALTN. A LT | ALTN. B ST | ALTN. B LT | ALTN. C ST | ALTN. C LT | ALTN. D ST | ALTN. D LT |
| 2636 | 134 | 400 | 4131 | 30 | -- | -- | -- | 370 | 10 C | 03/01-02/28 | 100 | 114 | -- | 161 | 114 | 161 | 88 | 135 | 0 | 0 | 114 | 114 |
| 2637 | 135 | 440 | 3050 | 440 | -- | -- | -- | -- | 7 C | 03/01-02/28 | 100 | 84 | -- | 84 | 84 | 84 | 70 | 70 | 0 | 0 | 84 | 84 |
| 2638 | 136 | 320 | 680 | 198 | 77 | -- | -- | 45 | 7 C | 03/01-02/28 | 100 | 86 | -- | 107 | 86 | 107 | 86 | 107 | 0 | 0 | 86 | 86 |
| 2639 | 137 | 4622 | 37466 | 3553 | 1069 | -- | -- | -- | 62 C | 03/02-02/28 | 100 | 74 | -- | 805 | 740 | 805 | 713 | 788 | 0 | 0 | 740 | 740 |
| 2640 | 138 | 346 | 650 | 128 | -- | -- | -- | 218 | 8 C | 03/01-02/28 | 100 | 95 | -- | 123 | 95 | 123 | 95 | 123 | 0 | 0 | 95 | 95 |
| 2641 | 139 | 635 | 5696 | 373 | 262 | -- | -- | -- | 12 C | 03/01-02/28 | 100 | 144 | -- | 161 | 144 | 161 | 82 | 99 | 0 | 0 | 144 | 144 |
| 2642 | 140 | 1121 | 7860 | 622 | 339 | -- | 160 | -- | 24 C | 03/01-02/28 | 100 | 281 | -- | 311 | 281 | 311 | 40 | 70 | 0 | 0 | 281 | 281 |
| 2643 | 141 | 320 | 2415 | 320 | -- | -- | -- | -- | 52 C | 03/02-02/28 | 16 | 99 | 520 | 171 | 99 | 171 | 99 | 171 | 0 | 0 | 99 | 99 |
| 2721* | 219 | 680 | | 35 | -- | -- | -- | 645 | 98 C | 03/01-02/28 | 16 | 189 | 987 | 198 | 189 | 198 | 187 | 196 | 0 | 0 | 189 | 189 |
| | | | | | | | | | | TOTAL | | 288 | 1507 | | | | | | | | | |
| 2644 | 142 | 160 | 1857 | 160 | -- | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 36 | -- | 36 | 36 | 36 | 36 | 36 | 0 | 0 | 36 | 36 |
| 2645 | 143 | 320 | 7520 | -- | 320 | -- | -- | -- | 6 C | 03/01-02/28 | 100 | 72 | -- | 95 | 72 | 95 | 72 | 95 | 0 | 0 | 72 | 72 |
| 2646 | 144 | 160 | 3600 | -- | 34 | -- | 46 | 80 | 4 C | 03/01-02/28 | 100 | 48 | -- | 71 | 48 | 71 | 48 | 71 | 0 | 0 | 48 | 48 |
| 2647 | 145 | 480 | 1433 | 263 | 70 | -- | -- | 147 | 3 C | 03/01-02/28 | 100 | 36 | -- | 136 | 111 | 136 | 111 | 136 | 0 | 0 | 111 | 111 |
| | | | | | | | | | 25 Y | 05/01-07/31 | 100 | 75 | | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 111 | -- | | | | | | | | | |
| 2648 | 146 | 800 | 800 | 736 | -- | -- | -- | 64 | 52 C | 05/15-09/30 | 100 | 236 | -- | 244 | 236 | 244 | 204 | 212 | 0 | 0 | 236 | 236 |
| 2649 | 147 | 2495 | 2755 | 2425 | 70 | -- | -- | -- | 445 C | 06/15-10/15 | 47 | 844 | 952 | 850 | 844 | 850 | 770 | 776 | 0 | 0 | 844 | 844 |
| 2650 | 148 | 40 | 1640 | -- | -- | -- | -- | 40 | 1 C | 03/01-02/28 | 100 | 10 | -- | 15 | 10 | 15 | 10 | 15 | 0 | 0 | 10 | 10 |
| 2652 | 150 | 320 | 1760 | -- | 20 | -- | -- | 300 | 6 C | 03/01-02/28 | 100 | 70 | -- | 110 | 70 | 110 | 70 | 110 | 0 | 0 | 70 | 70 |
| 2653 | 151 | 320 | 4786 | -- | 320 | -- | -- | -- | 5 C | 03/01-02/28 | 100 | 60 | -- | 89 | 60 | 89 | 0 | 29 | 0 | 0 | 60 | 60 |
| 2654 | 152 | 160 | 4640 | 160 | -- | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 34 | -- | 34 | 34 | 34 | 25 | 25 | 0 | 0 | 34 | 34 |
| 2655 | 153 | 320 | 6483 | 320 | -- | -- | -- | -- | 7 C | 03/01-02/28 | 100 | 84 | -- | 84 | 84 | 84 | 84 | 84 | 0 | 0 | 84 | 84 |
| 2656 | 154 | 1280 | 2880 | 403 | 268 | -- | 98 | 511 | 78 C | 04/01-08/15 | 76 | 267 | 84 | 355 | 267 | 355 | 244 | 332 | 0 | 0 | 267 | 267 |
| 2657 | 155 | 842 | 480 | 518 | -- | -- | -- | 324 | 36 C | 03/01-02/28 | 53 | 231 | 205 | 278 | 237 | 278 | 225 | 266 | 0 | 0 | 237 | 237 |
| | | | | | | | | | 1 H | 03/01-02/28 | 53 | 6 | 5 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 237 | 210 | | | | | | | | | |
| 2658 | 156 | 660 | 3080 | 241 | -- | -- | 339 | 80 | 14 C | 03/01-02/28 | 100 | 167 | -- | 207 | 167 | 207 | 167 | 207 | 0 | 0 | 167 | 167 |
| 2659 | 157 | 360 | 2879 | 40 | 218 | -- | -- | 102 | 8 C | 03/01-02/28 | 100 | 93 | -- | 115 | 93 | 115 | 93 | 115 | 0 | 0 | 93 | 93 |
| 2660 | 158 | 1080 | 11469 | 1080 | -- | -- | -- | -- | 23 C | 03/01-02/28 | 100 | 276 | -- | 276 | 276 | 276 | 145 | 145 | 0 | 0 | 276 | 276 |
| 2662 | 160 | 40 | 2480 | 40 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 12 | -- | 12 | 12 | 12 | 12 | 12 | 0 | 0 | 12 | 12 |
| 2663 | 161 | 840 | 395 | 420 | 420 | -- | -- | -- | 16 C | 03/01-02/28 | 100 | 195 | -- | 233 | 195 | 233 | 195 | 233 | 0 | 0 | 195 | 195 |
| 2664 | 162 | 640 | 2240 | 640 | -- | -- | -- | -- | 15 C | 03/01-02/28 | 100 | 174 | -- | 174 | 174 | 174 | 174 | 174 | 0 | 0 | 174 | 174 |
| 2665 | 163 | 399 | 3568 | 346 | 53 | -- | -- | -- | 8 C | 03/01-02/28 | 100 | 97 | -- | 102 | 97 | 102 | 0 | 5 | 0 | 0 | 97 | 97 |
| 2670 | 168 | 1194 | 1837 | 298 | 205 | -- | -- | 691 | 87 C | 03/01-02/28 | 38 | 397 | 647 | 516 | 411 | 516 | 411 | 516 | 0 | 0 | 411 | 516 |
| | | | | | | | | | 3 H | 03/01-02/28 | 38 | 14 | 22 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 411 | 669 | | | | | | | | | |
| 2671 | 169 | 1710 | 5040 | 776 | -- | -- | 934 | -- | 212 C | 03/01-02/28 | 18 | 458 | 2086 | 471 | 471 | 471 | 457 | 457 | 0 | 0 | 471 | 471 |
| | | | | | | | | | 6 H | 03/01-02/28 | 18 | 13 | 59 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 471 | 2145 | | | | | | | | | |
| 2674 | 172 | 1880 | 3800 | 1656 | 173 | -- | -- | 51 | 343 C | 03-01/02/28 | 26 | 1070 | 3045 | 1103 | 1082 | 1103 | 1061 | 1103 | 0 | 0 | 1082 | 1082 |
| | | | | | | | | | 4 H | 03/01-02/28 | 26 | 12 | 34 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 1082 | 3079 | | | | | | | | | |
| 2678 | 176 | 640 | 920 | 525 | 65 | -- | -- | 50 | 55 C | 03/01-02/28 | 32 | 212 | 451 | 225 | 212 | 225 | 205 | 218 | 0 | 0 | 212 | 212 |
| 2680 | 178 | 1214 | 3533 | 254 | 960 | -- | -- | -- | 128 C | 03/01-02/28 | 17 | 262 | 1274 | 309 | 277 | 309 | 277 | 309 | 0 | 0 | 277 | 277 |
| | | | | | | | | | 7 H | 03/01-02/28 | 17 | 15 | 69 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 277 | 1343 | | | | | | | | | |

YEARLONG AND SEASON AND NUMBER ALLOTMENTS (cont.)

|  |  |  |  |  |  |  |  | PUBLIC LAND RANGE CONDITION |  |  |  | CURRENT USE |  |  |  |  | PUBLIC |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A ST | LT | ALTN. B ST | LT | ALTN. C ST | LT | ALTN. D ST | LT |
| 2683 | 181 | 960 | 5440 | 864 | 32 | -- | -- | 64 | 172 C | 03/01-02/28 | 12 | 248 | 1816 | 261 | 252 | 261 | 241 | 250 | 0 | 0 | 252 | 252 |
|  |  |  |  |  |  |  |  |  | 3 H | 03/01-02/28 | 12 | 4 | 32 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 252 | 1848 |  |  |  |  |  |  |  |  |  |
| 2687 | 185 | 960 | 1280 | 640 | 320 | -- | -- | -- | 77 C | 03/01-02/28 | 28 | 259 | 690 | 357 | 270 | 357 | 270 | 357 | 0 | 0 | 270 | 270 |
|  |  |  |  |  |  |  |  |  |  | 03/01-02/28 | 28 | 11 | 25 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 3 H | TOTAL |  | 270 | 715 |  |  |  |  |  |  |  |  |  |
| 2693 | 191 | 520 | 1925 | 455 | 65 | -- | -- | -- | 10 C | 03/01-02/28 | 100 | 116 | -- | 120 | 116 | 120 | 108 | 112 | 0 | 0 | 116 | 116 |
| 2694 | 192 | 3544 | 11521 | 3058 | 486 | -- | -- | -- | 296 C | 03/01-02/28 | 18 | 640 | 2912 | 719 | 698 | 719 | 586 | 607 | 0 | 0 | 698 | 698 |
|  |  |  |  |  |  |  |  |  | 5 C | 03/01-02/28 | 100 | 58 | -- |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 698 | 2912 |  |  |  |  |  |  |  |  |  |
| 2696 | 194 | 680 | 10385 | 680 | -- | -- | -- | -- | 12 C | 03/01-02/28 | 100 | 142 | -- | 142 | 142 | 142 | 121 | 121 | 0 | 0 | 142 | 142 |
| 2697 | 195 | 960 | 5714 | 440 | 240 | -- | -- | 280 | 163 C | 03/01-02/28 | 10 | 198 | 1758 | 354 | 198 | 354 | 198 | 354 | 0 | 0 | 198 | 198 |
| 2698 | 196 | 480 | 3040 | 51 | 102 | -- | -- | 327 | 77 C | 03/01-02/28 | 15 | 139 | 785 | 142 | 142 | 142 | 121 | 121 | 0 | 0 | 142 | 142 |
|  |  |  |  |  |  |  |  |  | 1 H | 03/01-02/28 | 15 | 3 | 9 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 142 | 794 |  |  |  |  |  |  |  |  |  |
| 2699 | 197 | 1280 | 2960 | 768 | -- | -- | 320 | 192 | 102 C | 03/01-02/28 | 25 | 306 | 918 | 333 | 309 | 333 | 291 | 315 | 0 | 0 | 309 | 309 |
|  |  |  |  |  |  |  |  |  | 1 H | 03/01-02/28 | 25 | 3 | 9 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 309 | 927 |  |  |  |  |  |  |  |  |  |
| 2700 | 198 | 1280 | 2955 | 1143 | -- | -- | 32 | 105 | 101 C | 03/01-02/28 | 25 | 303 | 909 | 325 | 312 | 325 | 292 | 305 | 0 | 0 | 312 | 312 |
|  |  |  |  |  |  |  |  |  | 3 H | 03/01-02/28 | 25 | 9 | 27 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 312 | 936 |  |  |  |  |  |  |  |  |  |
| 2701 | 199 | 815 | 3600 | 815 | -- | -- | -- | -- | 85 C | 03/01-02/28 | 15 | 154 | 866 | 157 | 157 | 157 | 157 | 157 | 0 | 0 | 157 | 157 |
|  |  |  |  |  |  |  |  |  | 2 H | 03/01-02/28 | 15 | 3 | 21 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 157 | 887 |  |  |  |  |  |  |  |  |  |
| 2702 | 200 | 1520 | 3860 | 1505 | 15 | -- | -- | -- | 145 C | 03/01-02/28 | 22 | 391 | 1385 | 391 | 391 | 391 | 379 | 379 | 0 | 0 | 391 | 391 |
| 2703 | 201 | 390 | 1280 | 300 | -- | -- | -- | 90 | 94 Y | 05/01-11/01 | 23 | 98 | 328 | 110 | 98 | 110 | 0 | 11 | 0 | 0 | 98 | 98 |
| 2706 | 204 | 640 | 2273 | 416 | 224 | -- | -- | -- | 70 C | 06/10-08/15 | 100 | 154 | -- | 174 | 154 | 174 | 129 | 149 | 0 | 0 | 154 | 154 |
| 2707 | 205 | 254 | 1280 | 254 | -- | -- | -- | -- | 6 C | 03/01-02/28 | 100 | 67 | -- | 67 | 67 | 67 | 0 | 0 | 0 | 0 | 67 | 67 |
| 2708 | 206 | 320 | 1820 | 294 | 26 | -- | -- | -- | 7 C | 03/01-02/28 | 100 | 84 | -- | 86 | 84 | 86 | 80 | 82 | 0 | 0 | 84 | 84 |
| 2709 | 207 | 640 | 960 | 346 | -- | -- | -- | 294 | 32 C | 04/01-09/30 | 75 | 143 | 48 | 180 | 143 | 180 | 118 | 155 | 0 | 0 | 143 | 143 |
| 2710 | 208 | 320 | 960 | -- | 96 | -- | -- | 224 | 43 C | 03/01-02/28 | 17 | 88 | 428 | 125 | 88 | 125 | 85 | 122 | 0 | 0 | 88 | 88 |
| 2712 | 210 | 1440 | 4480 | 1254 | -- | -- | -- | 186 | 135 C | 05/01-05/20 | 87 | 79 | 11 | 359 | 335 | 359 | 8 | 32 | 0 | 0 | 335 | 335 |
|  |  |  |  |  |  |  |  |  | 20 Y | 06/01-10/01 | 87 | 53 | 7 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 73 C | 10/01-01/06 | 87 | 203 | 31 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 335 | 49 |  |  |  |  |  |  |  |  |  |
| 2713 | 211 | 720 | 1520 | 355 | -- | -- | -- | 365 | 2 C | 03/01-02/28 | 100 | 18 | -- | 227 | 182 | 227 | 182 | 227 | 0 | 0 | 182 | 182 |
|  |  |  |  |  |  |  |  |  | 45 C | 05/20-09/07 | 100 | 164 | -- |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 182 | -- |  |  |  |  |  |  |  |  |  |
| 2714 | 212 | 1080 | 1700 | 869 | -- | -- | -- | 211 | 7 C | 03/01-02/28 | 100 | 89 | -- | 330 | 303 | 330 | 213 | 240 | 0 | 0 | 303 | 303 |
|  |  |  |  |  |  |  |  |  | 20 C | 05/12-10/11 | 56 | 56 | 44 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 56 C | 06/01-10/31 | 56 | 158 | 122 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 303 | 166 |  |  |  |  |  |  |  |  |  |
| 2716 | 214 | 1560 | 4181 | 1259 | 51 | -- | -- | 250 | 8 C | 03/01-02/28 | 100 | 95 | -- | 396 | 360 | 396 | 351 | 387 | 0 | 0 | 360 | 360 |
|  |  |  |  |  |  |  |  |  | 72 C | 06/20-10/19 | 79 | 227 | 61 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  | 38 C | 06/20-07/19 | 100 | 38 | -- |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 360 | 61 |  |  |  |  |  |  |  |  |  |
| 2717 | 215 | 1280 | 2730 | 1069 | -- | -- | -- | 211 | 7 C | 03/01-02/28 | 100 | 80 | -- | 342 | 315 | 342 | 297 | 324 | 0 | 0 | 315 | 315 |
|  |  |  |  |  |  |  |  |  | 40 C | 05/01-10/26 | 100 | 235 | - |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 315 | -- |  |  |  |  |  |  |  |  |  |

YEARLONG AND SEASON AND NUMBER ALLOTMENTS (cont.)

| | | | | | | | | PUBLIC LAND RANGE CONDITION | | | | CURRENT USE | | | | | | | PUBLIC | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A ST | ALTN. A LT | ALTN. B ST | ALTN. B LT | ALTN. C ST | ALTN. C LT | ALTN. D ST | ALTN. D LT |
| 2718 | 216 | 730 | 1880 | 332 | 40 | -- | -- | 358 | 1 C | 03/01-02/28 | 100 | 12 | -- | 231 | 182 | 231 | 15 | 64 | 0 | 0 | 182 | 182 |
| | | | | | | | | | 10 C | 04/15-07/15 | 51 | 15 | 15 | | | | | | | | | |
| | | | | | | | | | 8 Y | 04/15-07/15 | 51 | 9 | 9 | | | | | | | | | |
| | | | | | | | | | 30 C | 05/01-07/15 | 51 | 39 | 39 | | | | | | | | | |
| | | | | | | | | | 35 C | 05/01-10/31 | 51 | 107 | 107 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 182 | 170 | | | | | | | | | |
| 2719 | 217 | 920 | 2880 | 683 | — | — | -- | 237 | 4 C | 03/01-02/28 | 100 | 44 | -- | 233 | 204 | 233 | 204 | 233 | 0 | 0 | 204 | 204 |
| | | | | | | | | | 59 C | 06/01-10/27 | 46 | 160 | 129 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 204 | 129 | | | | | | | | | |
| 2720 | 218 | 778 | 1980 | 394 | -- | -- | — | 384 | 42 C | 05/01-09/30 | 100 | 212 | -- | 260 | 212 | 260 | 125 | 173 | 0 | 0 | 212 | 212 |
| 2722 | 220 | 2240 | 2240 | 1983 | -- | -- | -- | 257 | 135 C | 05/15-08/04 | 100 | 360 | -- | 586 | 554 | 586 | 540 | 572 | 0 | 0 | 554 | 554 |
| | | | | | | | | | 135 C | 08/05-10/07 | 68 | 194 | 90 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 554 | 90 | | | | | | | | | |
| 2726 | 224 | 1485 | — | 1165 | -- | -- | — | 320 | 45 C | 05/15-10/14 | 94 | 212 | 13 | 212 | 212 | 212 | 212 | 212 | 0 | 0 | 212 | 212 |
| | 296 | 475 | 269 | 475 | -- | -- | -- | -- | 7 C | 03/01-02/28 | 66 | 52 | 27 | 186 | 146 | 186 | 146 | 186 | 0 | 0 | 146 | 146 |
| | | | | | | | | | 32 C | 10/15-02/28 | 66 | 94 | 50 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 358 | 90 | | | | | | | | | |
| 2729 | 227 | 3038 | 4360 | 2338 | 90 | -- | — | 610 | 2 C | 03/01-02/28 | 100 | 20 | -- | 915 | 831 | 915 | 575 | 659 | 0 | 0 | 831 | 831 |
| | | | | | | | | | 125 C | 06/01-10/24 | 90 | 540 | 60 | | | | | | | | | |
| | | | | | | | | | 101 C | 06/01-10/24 | 56 | 271 | 214 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 831 | 274 | | | | | | | | | |
| 2730 | 228 | 640 | 2240 | 640 | -- | -- | — | — | 24 C | 05/01-10/31 | 100 | 144 | — | 144 | 144 | 144 | 144 | 144 | 0 | 0 | 144 | 144 |
| 2731 | 229 | 560 | 1600 | 560 | -- | -- | — | -- | 24 C | 05/15-11/15 | 100 | 144 | -- | 220 | 144 | 220 | 144 | 220 | 0 | 0 | 144 | 144 |
| 2732 | 230 | 320 | 720 | 160 | — | — | 20 | 140 | 8 C | 03/01-02/28 | 100 | 93 | -- | 110 | 93 | 110 | 93 | 110 | 0 | 0 | 93 | 93 |
| 2733 | 231 | 640 | 1215 | 640 | -- | -- | -- | -- | 14 C | 03/01-02/28 | 100 | 164 | -- | 164 | 164 | 164 | 154 | 154 | 0 | 0 | 164 | 164 |
| 2734 | 232 | 2248 | 1621 | 1738 | -- | -- | — | 510 | 108 C | 10/15-05/14 | 34 | 256 | 284 | 680 | 616 | 680 | 571 | 635 | 0 | 0 | 616 | 616 |
| | | | | | | | | | 72 C | 05/15-10/14 | 100 | 360 | -- | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 616 | 284 | | | | | | | | | |
| 2735 | 233 | 3106 | 1600 | 2526 | -- | -- | 90 | 490 | 15 C | 03/01--2/28 | 100 | 176 | -- | 885 | 823 | 885 | 700 | 762 | 0 | 0 | 823 | 823 |
| | | | | | | | | | 50 C | 05/01-09/30 | 66 | 166 | 85 | | | | | | | | | |
| | | | | | | | | | 92 C | 06/15-12/14 | 71 | 392 | 252 | | | | | | | | | |
| | | | | | | | | | 50 C | 10/01-12/14 | 71 | 89 | 36 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 823 | 373 | | | | | | | | | |
| 2736 | 234 | 320 | 640 | 240 | -- | -- | 40 | 40 | 8 C | 03/01-02/28 | 100 | 90 | -- | 95 | 90 | 95 | 90 | 95 | 0 | 0 | 90 | 90 |
| 2739 | 237 | 1300 | 2280 | 850 | -- | -- | -- | 450 | 24 C | 05/01-10/30 | 100 | 144 | — | 144 | 144 | 144 | 144 | 144 | 0 | 0 | 144 | 144 |
| | 238 | 1031 | 2672 | 681 | 200 | -- | — | 150 | 3 C | 03/01-02/28 | 100 | 36 | — | 280 | 250 | 280 | 250 | 280 | 0 | 0 | 250 | 250 |
| | | | | | | | | | 136 C | 04/01-04/30 | 36 | 49 | 87 | | | | | | | | | |
| | | | | | | | | | 112 C | 05/01-07/21 | 36 | 109 | 193 | | | | | | | | | |
| | | | | | | | | | 25 C | 07/22-11/30 | 36 | 56 | 99 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 250 | 379 | | | | | | | | | |
| 2740 | 239 | 560 | 720 | 560 | -- | -- | -- | -- | 13 C | 03/01-02/28 | 100 | 152 | -- | 152 | 152 | 152 | 0 | 0 | 0 | 0 | 152 | 152 |
| 2741 | 240 | 160 | 2560 | 160 | -- | -- | -- | -- | 4 C | 03/01-02/28 | 100 | 46 | — | 46 | 46 | 46 | 34 | 34 | 0 | 0 | 46 | 46 |
| 2742 | 241 | 925 | 3840 | 925 | -- | -- | -- | -- | 105 C | 05/15-10/14 | 47 | 247 | 278 | 247 | 247 | 247 | 231 | 231 | 0 | 0 | 247 | 247 |
| 2743 | 242 | 960 | 2560 | 520 | — | — | 240 | 200 | 25 C | 03/01-02/28 | 100 | 296 | — | 321 | 296 | 321 | 296 | 321 | 0 | 0 | 296 | 296 |

## YEARLONG AND SEASON AND NUMBER ALLOTMENTS (continued)

| | | | | | | | | PUBLIC LAND RANGE CONDITION | | | | CURRENT USE | | | PUBLIC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A | | ALTN. B | | ALTN. C | | ALTN. D | |
| | | | | | | | | | | | | | | | ST | LT | ST | LT | ST | LT | ST | LT |
| 2746 | 245 | 360 | 1617 | 360 | -- | -- | -- | -- | 7 C | 03/01-02/28 | 100 | 89 | -- | 89 | 89 | 89 | 0 | 0 | 0 | 0 | 89 | 89 |
| 2749 | 248 | 800 | 1128 | 520 | 240 | -- | 40 | -- | 16 C | 03/01-02/28 | 100 | 193 | -- | 215 | 193 | 215 | 186 | 208 | 0 | 0 | 193 | 193 |
| 2751 | 250 | 960 | 2869 | 960 | -- | -- | -- | -- | 21 C | 03/01-02/28 | 100 | 256 | -- | 256 | 256 | 256 | 73 | 73 | 0 | 0 | 256 | 256 |
| 2753 | 252 | 6056 | IN#2155 | 5706 | -- | -- | -- | 350 | 134 C | 03/01-02/28 | 100 | 1603 | -- | 1647 | 1603 | 1647 | 1423 | 1467 | 0 | 0 | 1603 | 1603 |
| 2754 | 253 | 19750 | 31699 | 19217 | 240 | -- | 100 | 193 | 330 C | 01/01-06/30 | 33 | 656 | 1654 | 6202 | 5937 | 6202 | 4777 | 5042 | 0 | 0 | 5937 | 5937 |
| | | | | | | | | | 726 C | 07/01-12/31 | 61 | 2658 | 1698 | | | | | | | | | |
| | | | | | | | | | 314 C | 11/11-03/31 | 29 | 419 | 1046 | | | | | | | | | |
| | | | | | | | | | 396 C | 01/01-06/30 | 49 | 1165 | 1607 | | | | | | | | | |
| | | | | | | | | | 396 C | 01/01-06/30 | 10 | 238 | 2534 | | | | | | | | | |
| | | | | | | | | | 588 C | 04/01-11/10 | 16 | 690 | 3622 | | | | | | | | | |
| | | | | | | | | | 20 H | 03/01-02/28 | 46 | 111 | 129 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 5937 | 12290 | | | | | | | | | |
| 2756 | 255 | 960 | 3524 | 890 | -- | -- | -- | 70 | 21 C | 03/01-02/28 | 100 | 246 | -- | 255 | 246 | 255 | 246 | 255 | 0 | 0 | 246 | 246 |
| 2757 | 256 | 3663 | 3841 | 3663 | -- | -- | -- | -- | 48 C | 06/01-10/30 | 100 | 240 | -- | 240 | 240 | 240 | 240 | 240 | 0 | 0 | 240 | 240 |
| | 257 | 320 | -- | 160 | -- | -- | -- | 160 | 7 C | 03/01-02/28 | 100 | 88 | -- | 108 | 88 | 108 | 88 | 108 | 0 | 0 | 88 | 88 |
| 2758 | 258 | 320 | 5080 | 110 | -- | -- | -- | 210 | 8 C | 03/01-02/28 | 100 | 96 | -- | 123 | 96 | 123 | 96 | 123 | 0 | 0 | 96 | 96 |
| 2759 | 259 | 320 | 2567 | 50 | -- | -- | -- | 270 | 8 C | 03/01-02/28 | 100 | 96 | -- | 130 | 96 | 130 | 96 | 130 | 0 | 0 | 96 | 96 |
| 2761 | 261 | 320 | 2955 | 100 | -- | -- | 40 | 180 | 7 C | 03/01-02/28 | 100 | 84 | -- | 107 | 84 | 107 | 84 | 107 | 0 | 0 | 84 | 84 |
| 2764 | 264 | 200 | 2760 | 200 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 24 | -- | 24 | 24 | 24 | 22 | 22 | 0 | 0 | 24 | 24 |
| 2765 | 265 | 1421 | 1020 | 1371 | 50 | -- | -- | -- | 65 C | 04/01-10/31 | 69 | 314 | 141 | 320 | 319 | 320 | 286 | 287 | 0 | 0 | 319 | 319 |
| | | | | | | | | | 2 C | 06/11-09/10 | 69 | 5 | 1 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 319 | 142 | | | | | | | | | |
| 2766 | 266 | 2957 | 1297 | 2767 | 190 | -- | -- | -- | 115 C | 12/10-04/30 | 26 | 141 | 396 | 861 | 844 | 861 | 67 | 84 | 0 | 0 | 844 | 844 |
| | | | | | | | | | 121 C | 05/01-10/31 | 97 | 703 | 23 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 844 | 419 | | | | | | | | | |
| 2767 | 237 | -- | 2701 | | | In | 2739-237 | -- | 30 C | 05/01-10/31 | 100 | 180 | -- | 180 | 180 | 180 | 179 | 179 | 0 | 0 | 180 | 180 |
| 2768 | 256 | -- | 1194 | | | In | 2757-256 | -- | 33 C | 05/01-10/31 | 100 | 198 | -- | 198 | 198 | 198 | 133 | 133 | 0 | 0 | 198 | 198 |
| 2769 | 256 | -- | 2788 | | | In | 2757-256 | -- | 54 C | 05/15-10/14 | 100 | 271 | -- | 271 | 271 | 271 | 206 | 206 | 0 | 0 | 271 | 271 |
| 2770 | 293 | 3042 | 1280 | 2882 | -- | -- | -- | 160 | 28 C | 06/01-10/31 | 84 | 121 | 19 | 141 | 121 | 141 | 0 | 0 | 0 | 0 | 121 | 121 |
| 2771 | 267 | 281 | 4920 | 281 | -- | -- | -- | -- | 21 C | 07/01-10/31 | 100 | 84 | -- | 84 | 84 | 84 | 84 | 84 | 0 | 0 | 84 | 84 |
| 2772 | 369 | 2089 | -- | 2089 | -- | -- | -- | -- | 43 C | 04/01-11/15 | 51 | 168 | 155 | 170 | 168 | 170 | 168 | 170 | 0 | 0 | 168 | 168 |
| 2775 | 271 | 560 | 2880 | 560 | -- | -- | -- | -- | 24 C | 05/10-11/09 | 100 | 144 | -- | 144 | 144 | 144 | 144 | 144 | 0 | 0 | 144 | 144 |
| 2776 | 256 | -- | -- | -- | -- | In | 2757-256 | -- | 72 C | 05/04-10/31 | 100 | 404 | -- | 404 | 404 | 404 | 339 | 339 | 0 | 0 | 404 | 404 |
| | 272 | 4187 | 4819 | 3307 | 640 | -- | 80 | 160 | 173 C | 03/01-02/28 | 12 | 249 | 1827 | 1367 | 1121 | 1367 | 1074 | 1320 | 0 | 0 | 1121 | 1121 |
| | | | | | | | | | 250 Y | 04/01-10/14 | 72 | 872 | 347 | | | | | | | | | |
| | 293 | -- | -- | | -- | In | 2770-293 | -- | 52 C | 05/01-10/31 | 84 | 262 | 50 | 262 | 262 | 262 | 82 | 82 | 0 | 0 | 262 | 262 |
| | | | | | | | | | | TOTAL | | 1787 | 2224 | | | | | | | | | |

## YEARLONG AND SEASON AND NUMBER ALLOTMENTS (continued)

| | | | | PUBLIC LAND RANGE CONDITION | | | | | | | | CURRENT USE | | | PUBLIC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A ST | ALTN. A LT | ALTN. B ST | ALTN. B LT | ALTN. C ST | ALTN. C LT | ALTN. D ST | ALTN. D LT |
| 2777 | 273 | 3024 | 1917 | 2754 | -- | -- | -- | 270 | 199 C | 12/01-03/31 | 35 | 277 | 519 | 1243 | 1209 | 1243 | 960 | 994 | 0 | 0 | 1209 | 1209 |
| | | | | | | | | | 10 H | 12/01-03/31 | 35 | 14 | 25 | | | | | | | | | |
| | | | | | | | | | 199 C | 04/01-11/30 | 55 | 874 | 718 | | | | | | | | | |
| | | | | | | | | | 10 H | 04/01-11/13 | 55 | 44 | 56 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 1209 | 1319 | | | | | | | | | |
| 2778 | 274 | 4628 | 3077 | 3248 | 210 | — | 290 | 880 | 23 C | 03/01-02/28 | 100 | 535 | -- | 1490 | 1362 | 1490 | 969 | 969 | 0 | 0 | 1362 | 1362 |
| | | | | | | | | | 121 C | 04/01-11/15 | 52 | 827 | 763 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 1362 | 763 | | | | | | | | | |
| 2779 | 275 | 1926 | 5760 | 1926 | -- | -- | -- | -- | 236 C | 04/01-12/01 | 25 | 475 | 1431 | 475 | 475 | 475 | 464 | 464 | 0 | 0 | 475 | 475 |
| 2780 | 276 | 7598 | 5030 | 6948 | 560 | -- | 90 | — | 26 C | 03/01-02/28 | 100 | 310 | -- | 1813 | 1777 | 1813 | 1594 | 1630 | 0 | 0 | 1777 | 1777 |
| | | | | | | | | | 460 C | 05/01-10/09 | 60 | 1467 | 971 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 1777 | 971 | | | | | | | | | |
| 2781 | 277 | 2040 | 3095 | 1650 | -- | -- | 140 | 250 | 112 C | 04/16-11/30 | 64 | 537 | 303 | 569 | 537 | 569 | 537 | 569 | 0 | 0 | 537 | 537 |
| 2782 | 278 | 1120 | 6196 | 520 | 20 | -- | -- | 580 | 175 C | 12/01-03/31 | 22 | 154 | 546 | 411 | 336 | 411 | 336 | 411 | 0 | 0 | 336 | 336 |
| | | | | | | | | | 175 C | 05/01-05/30 | 22 | 39 | 136 | | | | | | | | | |
| | | | | | | | | | 97 C | 05/01-07/31 | 49 | 143 | 148 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 336 | 830 | | | | | | | | | |
| 2783 | 279 | 851 | 779 | 561 | 90 | — | 40 | 160 | 50 C | 04/15-08/07 | 100 | 188 | — | 216 | 188 | 216 | 188 | 216 | 0 | 0 | 188 | 188 |
| 2784 | 280 | 320 | 4643 | 180 | -- | -- | -- | 140 | 8 C | 03/01-02/28 | 100 | 90 | -- | 108 | 90 | 108 | 90 | 108 | 0 | 0 | 90 | 90 |
| 2785 | 281 | 480 | 3680 | 420 | -- | -- | — | 60 | 11 C | 03/01-02/28 | 100 | 128 | — | 136 | 128 | 136 | 128 | 136 | 0 | 0 | 128 | 128 |
| 2788 | 284 | 4793 | 7793 | 4733 | -- | -- | -- | 60 | 100 C | 12/01-04/30 | 8 | 40 | 460 | 1355 | 1341 | 1355 | 1254 | 1268 | 0 | 0 | 1341 | 1341 |
| | | | | | | | | | 150 C | 12/01-04/30 | 29 | 218 | 532 | | | | | | | | | |
| | | | | | | | | | 117 C | 11/15-05/14 | 29 | 204 | 498 | | | | | | | | | |
| | | | | | | | | | 5 H | 11/15-05/14 | 29 | 9 | 21 | | | | | | | | | |
| | | | | | | | | | 250 C | 05/01-11/29 | 50 | 870 | 870 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 1341 | 2381 | | | | | | | | | |
| 2789 | 285 | 1135 | 1281 | 1025 | 60 | -- | -- | 50 | 57 C | 04/01-11/30 | 66 | 302 | 154 | 313 | 302 | 313 | 282 | 293 | 0 | 0 | 302 | 302 |
| 2790 | 286 | 2524 | 6173 | 2434 | 50 | — | 40 | -- | 244 C | 12/01-05/31 | 38 | 556 | 908 | 713 | 709 | 713 | 120 | 124 | 0 | 0 | 709 | 709 |
| | | | | | | | | | 5 H | 12/01-05/31 | 38 | 12 | 18 | | | | | | | | | |
| | | | | | | | | | 70 S | 12/01-05/31 | 38 | 32 | 52 | | | | | | | | | |
| | | | | | | | | | 210 C | 06/01-11/29 | 8 | 100 | 1160 | | | | | | | | | |
| | | | | | | | | | 5 H | 06/01-11/29 | 8 | 2 | 28 | | | | | | | | | |
| | | | | | | | | | 70 S | 06/01-11/29 | 8 | 7 | 77 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 709 | 2243 | | | | | | | | | |
| 2791 | 287 | 2980 | 2870 | 2770 | -- | -- | 50 | 160 | 125 C | 05/15-10/14 | 100 | 630 | -- | 646 | 630 | 646 | 296 | 312 | 0 | 0 | 630 | 630 |
| 2794 | 290 | 2114 | 4600 | 1474 | -- | — | 180 | 460 | 5 C | 03/01-02/28 | 100 | 60 | — | 638 | 576 | 638 | 355 | 417 | 0 | 0 | 576 | 576 |
| | | | | | | | | | 52 C | 05/01-12/31 | 100 | 416 | -- | | | | | | | | | |
| | | | | | | | | | 45 C | 05/01-11/30 | 32 | 100 | 170 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 576 | 170 | | | | | | | | | |
| | 293 | | | | | In # | 2770-293 | — | 71 C | 05/15-10/31 | 84 | 328 | 62 | 328 | 328 | 328 | 103 | 103 | 0 | 0 | 328 | 328 |
| 2795 | 291 | 10 | 285 | -- | -- | -- | 10 | -- | 1 C | 03/01-02/28 | 100 | 5 | -- | 5 | 5 | 5 | 5 | 5 | 0 | 0 | 5 | 5 |
| 2797 | 369 | 2089 | 2390 | 2039 | 50 | -- | — | — | 46 C | 05/01-11/30 | 51 | 168 | 154 | 170 | 168 | 170 | 74 | 76 | 0 | 0 | 168 | 168 |
| 2798 | 287 | | | | | In # | 2791-287 | -- | 27 C | 05/20-11/19 | 100 | 162 | -- | 166 | 162 | 166 | 162 | 166 | 0 | 0 | 162 | 162 |
| | 293 | | | | | In # | 2770-293 | — | 26 C | 05/20-11/19 | 84 | 131 | 25 | 131 | 131 | 131 | 41 | 41 | 0 | 0 | 131 | 131 |
| | 294 | 989 | 5522 | 529 | -- | — | -- | 460 | 24 C | 03/01-02/28 | 100 | 287 | -- | 345 | 287 | 345 | 0 | 0 | 0 | 0 | 287 | 287 |
| | | | | | | | | | | TOTAL | | 580 | 25 | | | | | | | | | |

YEARLONG AND SEASON AND NUMBER ALLOTMENTS (continued

| | | | | | | | | PUBLIC LAND RANGE CONDITION | | | | | CURRENT USE | | | PUBLIC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A | | ALTN. B | | ALTN. C | | ALTN. D | |
| | | | | | | | | | | | | | | | | ST | LT | ST | LT | ST | LT | ST | LT |
| 2801 | 297 | 1833 | -- | 1433 | 190 | -- | -- | 210 | 56 | C | 12/01-03/31 | 25 | 58 | 166 | 489 | 445 | 489 | 401 | 445 | 0 | 0 | 445 | 445 |
| | | | | | | | | | 56 | C | 04/01-05/31 | 77 | 87 | 105 | | | | | | | | | |
| | | | | | | | | | 2 | H | 04/01-05/31 | 77 | 4 | -- | | | | | | | | | |
| | | | | | | | | | 56 | C | 06/01-10/30 | 85 | 286 | 64 | | | | | | | | | |
| | | | | | | | | | 2 | H | 06/01-11/30 | 85 | 10 | 2 | | | | | | | | | |
| | | | | | | | | | | | TOTAL | | 445 | 337 | | | | | | | | | |
| 2806 | 302 | 640 | 960 | 20 | 560 | -- | 60 | -- | 34 | C | 05/01-10/15 | 100 | 191 | -- | 241 | 191 | 241 | 191 | 241 | 0 | 0 | 191 | 191 |
| 2809 | 305 | 1279 | 1750 | 1279 | -- | -- | -- | -- | 52 | C | 05/01-10/31 | 100 | 312 | -- | 312 | 312 | 312 | 312 | 312 | 0 | 0 | 312 | 312 |
| 2811 | 307 | 491 | 427 | 231 | 260 | -- | -- | -- | 34 | C | 04/19-12/14 | 49 | 129 | 137 | 163 | 129 | 163 | 129 | 163 | 0 | 0 | 129 | 129 |
| 2812 | 308 | 310 | 973 | 150 | -- | -- | 160 | -- | 6 | C | 03/01-02/28 | 100 | 75 | -- | 75 | 75 | 75 | 61 | 61 | 0 | 0 | 75 | 75 |
| 2813 | 309 | 306 | 1257 | 306 | -- | -- | -- | -- | 6 | C | 03/01-02/28 | 100 | 68 | -- | 78 | 68 | 78 | 0 | 0 | 0 | 0 | 68 | 68 |
| | 579 | 640 | -- | 560 | -- | -- | -- | 80 | 51 | C | 05/01-10/31 | 46 | 141 | 165 | 141 | 141 | 141 | 0 | 0 | 0 | 0 | 141 | 141 |
| 2814 | 311 | 148 | 161 | -- | -- | -- | 148 | -- | 6 | C | 03/01-02/28 | 100 | 74 | -- | 91 | 74 | 91 | 74 | 91 | 0 | 0 | 74 | 74 |
| 2820 | 318 | 298 | 1020 | 298 | -- | -- | -- | -- | 43 | C | 05/20-10/25 | 32 | 71 | 153 | 71 | 71 | 71 | 65 | 65 | 0 | 0 | 71 | 71 |
| 2821 | 319 | 1637 | 1760 | 1327 | 310 | -- | -- | -- | 58 | C | 05/01-10/31 | 98 | 345 | 3 | 458 | 345 | 458 | 118 | 231 | 0 | 0 | 345 | 345 |
| 2823 | 321 | 640 | -- | 320 | | 170 | -- | 320 | 91 | C | 06/01-07/31 | 100 | 182 | -- | 340 | 182 | 340 | 182 | 340 | 0 | 0 | 182 | 182 |
| 2824 | 322 | 320 | 165 | 270 | -- | -- | -- | 50 | 7 | C | 03/01-02/28 | 100 | 84 | -- | 91 | 84 | 91 | 84 | 91 | 0 | 0 | 84 | 84 |
| 2825 | 324 | 774 | 3148 | 774 | -- | -- | -- | -- | 37 | C | 05/01-10/31 | 100 | 224 | -- | 224 | 224 | 224 | 216 | 216 | 0 | 0 | 224 | 224 |
| 2830 | 328 | 1600 | 2431 | -- | -- | -- | -- | -- | 30 | C | 03/01-02/28 | 100 | 355 | -- | 355 | 355 | 355 | 340 | 340 | 0 | 0 | 355 | 355 |
| | 577 | 1335 | -- | 1545 | -- | -- | 1390 | -- | 205 | C | 05/15-11/14 | 30 | 368 | 862 | 368 | 368 | 368 | 368 | 368 | 0 | 0 | 368 | 368 |
| | | | | | | | | | | | TOTAL | | 723 | 862 | | | | | | | | | |
| 2833 | 331 | 320 | 800 | -- | 110 | -- | -- | 210 | 8 | C | 03/01-02/28 | 100 | 90 | -- | 126 | 90 | 126 | 90 | 126 | 0 | 0 | 90 | 90 |
| | 579 | | | | | In # | 2813-579 | | 9 | C | 05/01-10/31 | 46 | 25 | 29 | 25 | 25 | 25 | 0 | 0 | 0 | 0 | 25 | 25 |
| | | | | | | | | | | | TOTAL | | 115 | 29 | | | | | | | | | |
| 2834 | 332 | 160 | 1440 | 160 | -- | -- | -- | -- | 3 | C | 03/01-02/28 | 100 | 35 | -- | 35 | 35 | 35 | 35 | 35 | 0 | 0 | 35 | 35 |
| 2835 | 333 | 1371 | 480 | 701 | 20 | 40 | -- | 610 | 54 | C | 05/01-11/30 | 78 | 295 | 83 | 374 | 295 | 374 | 279 | 358 | 0 | 0 | 295 | 295 |
| 2836 | 334 | 2274 | 8247 | 1524 | 280 | -- | -- | 470 | 243 | C | 03/01-02/28 | 16 | 466 | 2450 | 550 | 466 | 550 | 444 | 528 | 0 | 0 | 466 | 466 |
| 2837 | 335 | 320 | 1135 | 180 | 20 | -- | -- | 120 | 7 | C | 03/01-02/28 | 100 | 81 | -- | 98 | 81 | 98 | 81 | 98 | 0 | 0 | 81 | 81 |
| 2839 | 337 | 958 | 913 | 378 | 250 | -- | -- | 330 | 53 | C | 04/01-11/30 | 57 | 242 | 182 | 305 | 242 | 305 | 242 | 305 | 0 | 0 | 242 | 242 |
| 2840 | 338 | 640 | 1904 | 390 | -- | -- | -- | 250 | 36 | C | 04/15-11/15 | 60 | 163 | 89 | 195 | 163 | 195 | 135 | 167 | 0 | 0 | 163 | 163 |
| 2841 | 339 | 2615 | 3414 | 2365 | 70 | -- | 40 | 140 | 8 | C | 03/01-02/28 | 100 | 92 | -- | 669 | 645 | 669 | 316 | 340 | 0 | 0 | 645 | 645 |
| | | | | | | | | | 113 | C | 06/01-11/10 | 92 | 553 | 48 | | | | | | | | | |
| | | | | | | | | | | | TOTAL | | 645 | 48 | | | | | | | | | |
| 2842 | 340 | 1289 | 1460 | 789 | 90 | -- | -- | 410 | 99 | C | 05/01-11/30 | 45 | 309 | 384 | 369 | 309 | 369 | 309 | 369 | 0 | 0 | 309 | 309 |
| 2843 | 341 | 12360 | 1628 | 11010 | 880 | -- | 40 | 430 | 70 | C | 04/15-11/30 | 90 | 473 | 52 | 833 | 790 | 833 | 668 | 711 | 0 | 0 | 790 | 790 |
| | | | | | | | | | 63 | C | 05/15-11/01 | 90 | 317 | 30 | | | | | | | | | |
| | | | | | | | | | | | TOTAL | | 790 | 122 | | | | | | | | | |
| 2844 | 342 | 160 | 1976 | 160 | -- | -- | -- | -- | 3 | C | 03/01-02/28 | 100 | 30 | -- | 30 | 30 | 30 | 0 | 0 | 0 | 0 | 30 | 30 |
| | 368 | 1503 | -- | 1203 | 275 | -- | 25 | -- | 50 | C | 05/15-10/14 | 71 | 178 | 72 | 202 | 178 | 202 | 0 | 0 | 0 | 0 | 176 | 178 |
| | | | | | | | | | | | TOTAL | | 208 | 72 | | | | | | | | | |
| 2847 | 343 | 2292 | 3835 | 2172 | 80 | -- | 40 | -- | 65 | H | 03/01-02/28 | 11 | 86 | 694 | 474 | 472 | 474 | 441 | 443 | 0 | 0 | 472 | 472 |
| | | | | | | | | | 150 | C | 12/01-05/31 | 7 | 64 | 836 | | | | | | | | | |
| | | | | | | | | | 158 | C | 06/01-11/30 | 34 | 322 | 626 | | | | | | | | | |
| | | | | | | | | | | | TOTAL | | 472 | 2156 | | | | | | | | | |
| 2849 | 345 | 3550 | 4076 | 1690 | 410 | -- | 420 | 1030 | 344 | C | 05/01-11/01 | 52 | 1073 | 990 | 1239 | 1073 | 1239 | 164 | 330 | 0 | 0 | 1073 | 1073 |
| 2850 | 346 | 1830 | 4000 | 1500 | -- | -- | -- | 330 | 117 | C | 04/15-11/14 | 56 | 455 | 364 | 497 | 455 | 497 | 308 | 350 | 0 | 0 | 455 | 455 |
| 2852 | 348 | 606 | 2569 | 606 | -- | -- | -- | -- | 70 | C | 05/01-10/31 | 32 | 135 | 285 | 135 | 135 | 135 | 135 | 135 | 0 | 0 | 135 | 135 |
| 2853 | 349 | 430 | 759 | -- | -- | -- | 430 | -- | 10 | C | 03/01-02/28 | 100 | 122 | | 124 | 124 | 124 | 124 | 124 | 0 | 0 | 124 | 124 |

YEARLONG AND SEASON AND NUMBER ALLOTMENTS (continued)

| | | | | PUBLIC LAND RANGE CONDITION | | | | | | | | CURRENT USE | | | PUBLIC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A | | ALTN. B | | ALTN. C | | ALTN. D | |
| | | | | | | | | | | | | | | | ST | LT | ST | LT | ST | LT | ST | LT |
| 2854 | 310 | 2460 | -- | 2460 | -- | -- | -- | -- | 44 C | 05/01-10/31 | 100 | 264 | -- | 264 | 264 | 264 | 208 | 208 | 0 | 0 | 264 | 264 |
| | 350 | 40 | 2545 | 40 | -- | -- | — | — | 1 C | 03/01-02/28 | 100 | 12 | — | 12 | 12 | 12 | 12 | 12 | 0 | 0 | 12 | 12 |
| | | | | | | | | | | TOTAL | | 226 | | | | | | | | | | |
| 2855 | 351 | 640 | 2250 | 160 | 480 | -- | -- | — | 62 C | 06/01-10/30 | 50 | 156 | 156 | 192 | 156 | 192 | 0 | 36 | 0 | 0 | 156 | 156 |
| 2856 | 352 | 1157 | 1839 | 837 | 320 | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 30 | -- | 284 | 260 | 284 | 88 | 112 | 0 | 0 | 260 | 260 |
| | | | | | | | | | 120 C | 05/10-10/31 | 33 | 230 | 450 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 260 | 450 | | | | | | | | | |
| 2857 | 353 | 1680 | 4034 | 1440 | 140 | — | 40 | 60 | 55 C | 05/01-10/31 | 17 | 57 | 273 | 365 | 350 | 365 | 83 | 98 | 0 | 0 | 350 | 350 |
| | | | | | | | | | 53 C | 05/15-10/31 | 100 | 293 | -- | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 350 | 273 | | | | | | | | | |
| 2858 | 367 | 1920 | 2040 | 1920 | -- | -- | -- | -- | 63 C | 05/01-10/31 | 89 | 336 | 42 | 336 | 336 | 336 | 336 | 336 | 0 | 0 | 336 | 336 |
| 2859 | 310 | | | | | In # | 2854-310 | | 63 C | 05/01-11/01 | 100 | 380 | — | 380 | 380 | 380 | 380 | 380 | 0 | 0 | 380 | 380 |
| | 354 | 160 | 1262 | — | -- | -- | 80 | 80 | 4 C | 03/01-02/28 | 100 | 47 | -- | 57 | 47 | 57 | 47 | 57 | 0 | 0 | 47 | 47 |
| | | | | | | | | | | TOTAL | | 427 | | | | | | | | | | |
| 2860 | 355 | 1320 | 1320 | 770 | 140 | — | 80 | 330 | 47 C | 05/01-10/31 | 100 | 283 | -- | 466 | 466 | 466 | 466 | 466 | 0 | 0 | 466 | 466 |
| | | | | | | | | | 35 C | 05/01-10/31 | 87 | 183 | 27 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 466 | 27 | | | | | | | | | |
| 2862 | 357 | 3044 | 2593 | 2764 | -- | — | 60 | 220 | 143 C | 04/01-06/30 | 100 | 429 | — | 777 | 749 | 777 | 536 | 564 | 0 | 0 | 749 | 749 |
| | | | | | | | | | 157 C | 07/01-09/30 | 52 | 246 | 225 | | | | | | | | | |
| | | | | | | | | | 157 C | 10/01-02/28 | 9 | 74 | 554 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 749 | 779 | | | | | | | | | |
| 2863 | 358 | 40 | 741 | 20 | 20 | -- | -- | — | 1 C | 03/01-02/28 | 100 | 11 | — | 11 | 11 | 11 | 11 | 11 | 0 | 0 | 11 | 11 |
| 2864 | 484 | 595 | 320 | 295 | 275 | — | 25 | -- | 43 C | 05/15-10/14 | 71 | 153 | 62 | 177 | 153 | 177 | 0 | 0 | 0 | 0 | 153 | 153 |
| 2865 | 359 | 2875 | 2415 | 2815 | -- | -- | — | 60 | 158 C | 05/01-10/31 | 79 | 754 | 194 | 762 | 754 | 762 | 487 | 495 | 0 | 0 | 754 | 754 |
| 2866 | 367 | -- | 800 | | | In # | 2858-367 | -- | 23 C | 05/01-10/31 | 89 | 123 | 15 | 123 | 123 | 123 | 98 | 98 | 0 | 0 | 123 | 123 |
| | 482 | 977 | 960 | 677 | 275 | -- | 25 | — | 69 C | 05/15-10/14 | 71 | 245 | 100 | 269 | 245 | 269 | 0 | 0 | 0 | 0 | 245 | 245 |
| | | | | | | | | | | TOTAL | | 368 | 115 | | | | | | | | | |
| 2867 | 483 | 1749 | 160 | 1449 | 275 | — | 25 | — | 60 C | 05/15-10/14 | 71 | 213 | 87 | 237 | 213 | 237 | 0 | 0 | 0 | 0 | 245 | 245 |
| 2868 | 360 | 490 | 1200 | 230 | 160 | -- | 20 | 80 | 39 C | 05/15-10/10 | 42 | 81 | 109 | 97 | 81 | 97 | 0 | 9 | 0 | 0 | 81 | 81 |
| 2869 | 341 | -- | — | | | In # | 2843-341 | — | 171 C | 05/01-10/31 | 90 | 922 | 104 | 978 | 922 | 978 | 779 | 835 | 0 | 0 | 922 | 922 |
| | 361 | 624 | 3519 | 624 | -- | -- | -- | -- | 35 C | 06/01-10/31 | 100 | 175 | -- | 175 | 175 | 175 | 152 | 152 | 0 | 0 | 175 | 175 |
| | | | | | | | | | | TOTAL | | 1097 | 104 | | | | | | | | | |
| 2870 | 371 | 29 | 372 | -- | -- | -- | 29 | -- | 1 Y | 03/01-02/28 | 100 | 3 | -- | 3 | 3 | 3 | 3 | 3 | 0 | 0 | 3 | 3 |
| 2871 | 341 | — | 2760 | | | In # | 2843-341 | — | 76 C | 05/01-10/31 | 90 | 413 | 43 | 437 | 413 | 437 | 349 | 373 | 0 | 0 | 413 | 413 |
| 2872 | 362 | 2736 | 2445 | 206 | 790 | 70 | 60 | 1610 | 122 C | 04/10-10/21 | 100 | 780 | -- | 1053 | 780 | 1053 | 780 | 1053 | 0 | 0 | 780 | 780 |
| 2874 | 364 | 1857 | 1441 | 1637 | -- | -- | -- | 220 | 2 C | 03/01-02/28 | 100 | 22 | — | 538 | 510 | 538 | 465 | 493 | 0 | 0 | 510 | 510 |
| | | | | | | | | | 94 C | 05/01-11/30 | 69 | 488 | 170 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 510 | 170 | | | | | | | | | |
| 2875 | 365 | 2156 | 1241 | 2156 | -- | — | -- | — | 88 C | 04/20-10/19 | 100 | 530 | -- | 530 | 530 | 530 | 491 | 491 | 0 | 0 | 530 | 530 |
| 2876 | 366 | 646 | 1200 | 326 | 320 | -- | -- | — | 84 C | 05/01-08/30 | 44 | 147 | 189 | 176 | 147 | 176 | 147 | 176 | 0 | 0 | 147 | 147 |
| 2877 | 578 | 2532 | 3252 | 2022 | — | — | 50 | 460 | 50 C | 03/01-02/28 | 100 | 603 | -- | 661 | 603 | 661 | 585 | 643 | 0 | 0 | 603 | 603 |
| 2881 | 373 | 80 | 2480 | 80 | — | -- | -- | — | 4 C | 04/01-10/31 | 100 | 24 | — | 24 | 24 | 24 | 24 | 24 | 0 | 0 | 24 | 24 |
| 2882 | 372 | 48 | 385 | 48 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 4 | -- | 4 | 4 | 4 | 4 | 4 | 0 | 0 | 4 | 4 |
| 2884 | 374 | 80 | 201 | 64 | 16 | -- | -- | — | 2 C | 03/01-02/28 | 100 | 20 | — | 22 | 20 | 22 | 0 | 0 | 0 | 0 | 20 | 20 |
| 2885 | 375 | 40 | 9320 | 40 | -- | — | -- | -- | 1 C | 03/01-02/28 | 100 | 10 | -- | 10 | 10 | 10 | 0 | 0 | 0 | 0 | 10 | 10 |
| 2886 | 376 | 320 | 2880 | 320 | — | -- | -- | — | 6 C | 03/01/02/28 | 100 | 70 | — | 70 | 70 | 70 | 55 | 55 | 0 | 0 | 70 | 70 |
| 2887 | 377 | 160 | 3040 | 141 | 19 | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 24 | -- | 26 | 24 | 26 | 24 | 26 | 0 | 0 | 24 | 24 |
| 2888 | 378 | 960 | 2640 | 960 | -- | -- | — | — | 16 C | 03/01-02/28 | 100 | 193 | — | 193 | 193 | 193 | 179 | 179 | 0 | 0 | 193 | 193 |

YEARLONG AND SEASON AND NUMBER ALLOTMENTS (continued)

| | | | | | | | | PUBLIC LAND RANGE CONDITION | | | | CURRENT USE | | | PUBLIC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | ALTN. A | | ALTN. B | | ALTN. C | | ALTN. D | |
| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ST | LT | ST | LT | ST | LT | ST | LT |
| 2889 | 379 | 640 | 3200 | 640 | -- | -- | -- | -- | 9 C | 03/01-02/28 | 100 | 108 | -- | 108 | 108 | 108 | 108 | 108 | 0 | 0 | 108 | 108 |
| 2890 | 380 | 36 | 3135 | 36 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 18 | -- | 18 | 18 | 18 | 18 | 18 | 0 | 0 | 18 | 18 |
| 2891 | 381 | 640 | 11592 | 545 | 95 | -- | -- | -- | 12 C | 03/01-02/28 | 100 | 147 | -- | 156 | 147 | 156 | 110 | 119 | 0 | 0 | 147 | 147 |
| 2892 | 382 | 360 | 1880 | 360 | -- | -- | -- | -- | 7 C | 03/01-02/28 | 100 | 83 | -- | 83 | 83 | 83 | 74 | 74 | 0 | 0 | 83 | 83 |
| 2893 | 383 | 80 | 12400 | 80 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 14 | -- | 14 | 14 | 14 | 10 | 10 | 0 | 0 | 14 | 14 |
| 2894 | 384 | 80 | 4400 | 80 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 20 | -- | 20 | 20 | 20 | 20 | 20 | 0 | 0 | 20 | 20 |
| 2895 | 385 | 771 | 3629 | 531 | 200 | 40 | -- | -- | 6 C | 03/01-02/28 | 100 | 68 | -- | 94 | 68 | 94 | 65 | 91 | 0 | 0 | 68 | 68 |
| | 438 | 6160 | -- | 5847 | 313 | -- | -- | -- | 70 C | 04/01-10/31 | 44 | 217 | 273 | 226 | 217 | 226 | 96 | 105 | 0 | 0 | 217 | 217 |
| | | | | | | | | | | TOTAL | | 285 | 273 | | | | | | | | | |
| 2896 | 386 | 3120 | 17449 | 2750 | 370 | -- | -- | -- | 46 C | 03/01-02/28 | 100 | 552 | -- | 585 | 552 | 585 | 484 | 517 | 0 | 0 | 552 | 552 |
| 2897 | 387 | 640 | 6400 | 640 | -- | -- | -- | -- | 10 C | 03/01-02/28 | 100 | 115 | -- | 115 | 115 | 115 | 100 | 100 | 0 | 0 | 115 | 115 |
| 2898 | 388 | 101 | 6651 | 101 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 20 | -- | 20 | 20 | 20 | 3 | 3 | 0 | 0 | 20 | 20 |
| 2899 | 389 | 320 | 640 | 320 | -- | -- | -- | -- | 6 C | 03/01-02/28 | 100 | 74 | -- | 74 | 74 | 74 | 74 | 74 | 0 | 0 | 74 | 74 |
| 2900 | 390 | 205 | 10135 | 205 | -- | -- | -- | -- | 15 S | 03/01-02/28 | 100 | 34 | -- | 34 | 34 | 34 | 27 | 27 | 0 | 0 | 34 | 34 |
| 2901 | 391 | 320 | 3040 | 320 | -- | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 33 | -- | 33 | 33 | 33 | 26 | 26 | 0 | 0 | 33 | 33 |
| 2902 | 392 | 958 | 2560 | 512 | 446 | -- | -- | -- | 140 C | 05/10-07/07 | 41 | 110 | 161 | 130 | 110 | 130 | 110 | 130 | 0 | 0 | 110 | 110 |
| 2903 | 393 | 280 | 1280 | 280 | -- | -- | -- | -- | 4 C | 03/01-02/28 | 100 | 48 | -- | 48 | 48 | 48 | 0 | 0 | 0 | 0 | 48 | 48 |
| 2904 | 394 | 120 | 2360 | 120 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 26 | -- | 26 | 26 | 26 | 22 | 22 | 0 | 0 | 26 | 26 |
| 2905 | 395 | 40 | 480 | 40 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 11 | -- | 11 | 11 | 11 | 0 | 0 | 0 | 0 | 11 | 11 |
| 2906 | 392 | 958 | 3727 | 958 | -- | -- | -- | -- | 108 C | 05/15-07/31 | 41 | 110 | 160 | 130 | 110 | 130 | 82 | 102 | 0 | 0 | 110 | 110 |
| 2907 | 397 | 960 | 10970 | 960 | -- | -- | -- | -- | 15 C | 03/01-02/28 | 100 | 183 | -- | 183 | 183 | 183 | 160 | 160 | 0 | 0 | 183 | 183 |
| 2908 | 398 | 360 | 2840 | 360 | -- | -- | -- | -- | 8 C | 03/01-02/28 | 100 | 97 | -- | 97 | 97 | 97 | 85 | 85 | 0 | 0 | 97 | 97 |
| 2909 | 399 | 160 | 5373 | 160 | -- | -- | -- | -- | 4 C | 03/01-02/28 | 100 | 48 | -- | 48 | 48 | 48 | 40 | 40 | 0 | 0 | 48 | 48 |
| 2910 | 400 | 1280 | 7040 | 1280 | -- | -- | -- | -- | 17 C | 03/01-02/28 | 100 | 202 | -- | 202 | 202 | 202 | 183 | 183 | 0 | 0 | 202 | 202 |
| 2912 | 402 | 320 | 960 | 320 | -- | -- | -- | -- | 5 C | 03/01-02/28 | 100 | 56 | -- | 56 | 56 | 56 | 56 | 56 | 0 | 0 | 56 | 56 |
| 2997* | 487 | 320 | 6960 | 320 | -- | -- | -- | -- | 8 C | 03/01-02/28 | 100 | 107 | -- | 107 | 107 | 107 | 10 | 10 | 0 | 0 | 107 | 107 |
| | | | | | | | | | | TOTAL | | 163 | | | | | | | | | | |
| 2913 | 403 | 320 | 3280 | 320 | -- | -- | -- | -- | 5 C | 03/01-02/28 | 100 | 57 | -- | 57 | 57 | 57 | 49 | 49 | 0 | 0 | 57 | 57 |
| 2914 | 404 | 720 | 3440 | 720 | -- | -- | -- | -- | 12 C | 03/01-02/28 | 100 | 144 | -- | 144 | 144 | 144 | 52 | 52 | 0 | 0 | 144 | 144 |
| 2915 | 405 | 1999 | 13370 | 1862 | 137 | -- | -- | -- | 25 C | 03/01-02/28 | 100 | 298 | -- | 310 | 298 | 310 | 222 | 234 | 0 | 0 | 298 | 298 |
| 2916 | 406 | 71 | 4615 | 71 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 13 | -- | 13 | 13 | 13 | 0 | 0 | 0 | 0 | 13 | 13 |
| 2917 | 407 | 200 | 3818 | 200 | -- | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 40 | -- | 40 | 40 | 40 | 35 | 35 | 0 | 0 | 40 | 40 |
| 2918 | 408 | 720 | 6000 | 720 | -- | -- | -- | -- | 13 C | 03/01-02/28 | 100 | 161 | -- | 161 | 161 | 161 | 109 | 109 | 0 | 0 | 161 | 161 |
| 2919 | 409 | 40 | 4520 | 40 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 10 | -- | 10 | 10 | 10 | 0 | 0 | 0 | 0 | 10 | 10 |
| 2920 | 410 | 117 | 316 | 117 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 27 | -- | 27 | 27 | 27 | 22 | 22 | 0 | 0 | 27 | 27 |
| 2921 | 411 | 147 | 1709 | 147 | -- | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 32 | -- | 32 | 32 | 32 | 12 | 12 | 0 | 0 | 32 | 32 |
| 2922 | 412 | 1200 | 8631 | 900 | 300 | -- | -- | -- | 20 C | 03/01-02/28 | 100 | 243 | -- | 270 | 243 | 270 | 210 | 237 | 0 | 0 | 243 | 243 |
| 2923 | 413 | 80 | 3736 | 80 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 24 | -- | 24 | 24 | 24 | 18 | 18 | 0 | 0 | 24 | 24 |
| 2925 | 415 | 560 | -- | 560 | -- | -- | -- | -- | 130 C | 10/16-12/31 | 23 | 75 | 250 | 75 | 75 | 75 | 0 | 0 | 0 | 0 | 75 | 75 |
| | 438 | -- | 8509 | | | In # | 2895-438 | | 128 C | 04/01-11/30 | 44 | 451 | 573 | 470 | 451 | 470 | 199 | 218 | 0 | 0 | 451 | 451 |
| | 439 | 36 | -- | 36 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 11 | -- | 11 | 11 | 11 | 11 | 11 | 0 | 0 | 11 | 11 |
| | 440 | 4460 | -- | 4460 | -- | -- | -- | -- | 137 C | 05/01-10/15 | 59 | 444 | 310 | 684 | 684 | 684 | 684 | 684 | 0 | 0 | 684 | 684 |
| | | | | | | | | | 15 H | 05/16-10/15 | 59 | 44 | 31 | | | | | | | | | |
| | | | | | | | | | 51 C | 04/01-10/15 | 59 | 196 | 136 | | | | | | | | | |
| | | | | | | | | | | TOTAL | | 1221 | 1075 | | | | | | | | | |
| 2926 | 416 | 1037 | 21982 | 970 | 67 | -- | -- | -- | 16 C | 03/01-02/28 | 100 | 192 | -- | 198 | 192 | 198 | 162 | 168 | 0 | 0 | 192 | 192 |

YEARLONG AND SEASON AND NUMBER ALLOTMENTS (continued)

| | | | | | | | | PUBLIC LAND RANGE CONDITION | | | | | CURRENT USE | | | PUBLIC | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A | | ALTN. B | | ALTN. C | | ALTN. D | |
| | | | | | | | | | | | | | | | | ST | LT | ST | LT | ST | LT | ST | LT |
| 2927 | 417 | 80 | 1840 | 80 | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 24 | -- | 24 | 24 | 24 | 21 | 21 | 0 | 0 | 24 | 24 |
| 2928 | 418 | 39 | 1880 | 39 | -- | -- | -- | -- | 1 | C | 03/01-02/28 | 100 | 11 | -- | 11 | 11 | 11 | 11 | 11 | 0 | 0 | 11 | 11 |
| 2929 | 419 | 720 | 520 | 720 | -- | -- | -- | -- | 8 | C | 03/01-02/28 | 100 | 94 | -- | 94 | 94 | 94 | 78 | 78 | 0 | 0 | 94 | 94 |
| 2930 | 420 | 133 | 3489 | 83 | 50 | -- | -- | -- | 3 | C | 03/01-02/28 | 100 | 30 | -- | 34 | 30 | 34 | 24 | 28 | 0 | 0 | 30 | 30 |
| 2931 | 421 | 22 | 576 | 22 | -- | -- | -- | -- | 1 | C | 03/01-02/28 | 100 | 12 | -- | 12 | 12 | 12 | 12 | 12 | 0 | 0 | 12 | 12 |
| 2933 | 423 | 242 | 3282 | 242 | -- | -- | -- | -- | 5 | C | 03/01-02/28 | 100 | 60 | -- | 60 | 60 | 60 | 57 | 57 | 0 | 0 | 60 | 60 |
| 2934 | 424 | 720 | 2200 | 720 | -- | -- | -- | -- | 13 | C | 03/01-02/28 | 100 | 152 | -- | 152 | 152 | 152 | 118 | 118 | 0 | 0 | 152 | 152 |
| 2935 | 425 | 480 | 1754 | 110 | 370 | -- | -- | -- | 8 | C | 03/01-02/28 | 100 | 89 | -- | 122 | 89 | 122 | 80 | 113 | 0 | 0 | 89 | 89 |
| 2936 | 426 | 365 | 5825 | 165 | 162 | 38 | -- | -- | 8 | C | 03/01-02/28 | 100 | 100 | -- | 123 | 100 | 123 | 78 | 101 | 0 | 0 | 100 | 100 |
| 2937 | 427 | 2444 | 18209 | 2444 | -- | -- | -- | -- | 54 | C | 03/01-02/28 | 100 | 648 | -- | 648 | 648 | 648 | 648 | 648 | 0 | 0 | 648 | 648 |
| 3044* | 534 | 960 | 21000 | 930 | 30 | -- | -- | -- | 20 | C | 03/01-02/28 | 100 | 240 | -- | 242 | 240 | 242 | 116 | 118 | 0 | 0 | 240 | 240 |
| | | | | | | | | | | | TOTAL | | 888 | | | | | | | | | | |
| 2938 | 428 | 89 | 6008 | 89 | -- | -- | -- | -- | 5 | C | 05/15-10/31 | 100 | 27 | -- | 27 | 27 | 27 | 20 | 20 | 0 | 0 | 27 | 27 |
| 2939 | 429 | 200 | 6199 | 200 | -- | -- | -- | -- | 4 | C | 03/01-02/28 | 100 | 48 | -- | 48 | 48 | 48 | 38 | 38 | 0 | 0 | 48 | 48 |
| 2940 | 430 | 200 | 3496 | 200 | -- | -- | -- | -- | 5 | C | 03/01-02/28 | 100 | 63 | -- | 63 | 63 | 63 | 55 | 55 | 0 | 0 | 63 | 63 |
| 2942 | 432 | 320 | 4800 | 320 | -- | -- | -- | -- | 6 | C | 03/01-02/28 | 100 | 76 | -- | 76 | 76 | 76 | 38 | 38 | 0 | 0 | 76 | 76 |
| 2943 | 433 | 160 | 9695 | 160 | -- | -- | -- | -- | 3 | C | 03/01-02/28 | 100 | 36 | -- | 36 | 36 | 36 | 8 | 8 | 0 | 0 | 36 | 36 |
| 2944 | 434 | 2074 | 8001 | 2034 | 40 | -- | -- | -- | 35 | C | 03/01-02/28 | 100 | 416 | -- | 420 | 416 | 420 | 344 | 348 | 0 | 0 | 416 | 416 |
| 2945 | 435 | 80 | 12259 | 80 | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 24 | -- | 24 | 24 | 24 | 0 | 0 | 0 | 0 | 24 | 24 |
| 2947 | 437 | 37 | 1480 | 37 | -- | -- | -- | -- | 3 | C | 10/01-12/31 | 100 | 10 | -- | 10 | 10 | 10 | 0 | 0 | 0 | 0 | 10 | 10 |
| 2948 | 441 | 40 | 4120 | 40 | -- | -- | -- | -- | 1 | C | 03/01-02/28 | 100 | 11 | -- | 11 | 11 | 11 | 11 | 11 | 0 | 0 | 11 | 11 |
| 2949 | 442 | 160 | 640 | 160 | -- | -- | -- | -- | 3 | C | 03/01-02/28 | 100 | 39 | -- | 39 | 39 | 39 | 33 | 33 | 0 | 0 | 39 | 39 |
| 2951 | 441 | 560 | 645 | 560 | -- | -- | -- | -- | 13 | C | 03/01-02/28 | 100 | 153 | -- | 153 | 153 | 153 | 142 | 142 | 0 | 0 | 153 | 153 |
| 2952 | 442 | 477 | 840 | 477 | -- | -- | -- | -- | 8 | C | 03/01-02/28 | 100 | 100 | -- | 100 | 100 | 100 | 91 | 91 | 0 | 0 | 100 | 100 |
| 2953 | 443 | 160 | 4560 | 160 | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 29 | -- | 29 | 29 | 29 | 27 | 27 | 0 | 0 | 29 | 29 |
| 2954 | 444 | 320 | 5120 | 320 | -- | -- | -- | -- | 8 | C | 03/01-02/28 | 100 | 92 | -- | 92 | 92 | 92 | 69 | 69 | 0 | 0 | 92 | 92 |
| 2955 | 445 | 360 | 3240 | 360 | -- | -- | -- | -- | 10 | C | 03/01-02/28 | 100 | 122 | -- | 122 | 122 | 122 | 107 | 107 | 0 | 0 | 122 | 122 |
| 2956 | 446 | 680 | 9040 | 680 | -- | -- | -- | -- | 12 | C | 03/01-02/28 | 100 | 138 | -- | 138 | 138 | 138 | 123 | 123 | 0 | 0 | 138 | 138 |
| 2961 | 451 | 80 | 1460 | 80 | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 28 | -- | 28 | 28 | 28 | 26 | 26 | 0 | 0 | 28 | 28 |
| 2962 | 452 | 200 | 2796 | 200 | -- | -- | -- | -- | 5 | C | 03/01-02/28 | 100 | 58 | -- | 58 | 58 | 58 | 52 | 52 | 0 | 0 | 58 | 58 |
| 2963 | 453 | 99 | 200 | 99 | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 25 | -- | 25 | 25 | 25 | 25 | 25 | 0 | 0 | 25 | 25 |
| 2964 | 454 | 320 | 1280 | 294 | -- | 26 | -- | -- | 8 | C | 03/01-02/28 | 100 | 92 | -- | 98 | 92 | 98 | 69 | 75 | 0 | 0 | 92 | 92 |
| 2965 | 455 | 160 | 7420 | 160 | -- | -- | -- | -- | 3 | C | 03/01-02/28 | 100 | 30 | -- | 30 | 30 | 30 | 24 | 24 | 0 | 0 | 30 | 30 |
| 2966 | 456 | 80 | 4346 | 80 | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 26 | -- | 26 | 26 | 26 | 23 | 23 | 0 | 0 | 26 | 26 |
| 2967 | 457 | 160 | 5790 | 90 | 35 | 35 | -- | -- | 4 | C | 03/01-02/28 | 100 | 50 | -- | 60 | 50 | 60 | 37 | 47 | 0 | 0 | 50 | 50 |
| 2968 | 458 | 244 | 3426 | 230 | 14 | -- | -- | -- | 7 | C | 03/01-02/28 | 100 | 82 | -- | 83 | 82 | 83 | 75 | 76 | 0 | 0 | 82 | 82 |
| 2969 | 459 | 80 | 960 | 80 | -- | -- | -- | -- | 15 | S | 03/01-02/28 | 100 | 23 | -- | 23 | 23 | 23 | 19 | 19 | 0 | 0 | 23 | 23 |
| 2971 | 461 | 371 | 7000 | 71 | 300 | -- | -- | -- | 8 | C | 03/01-02/28 | 100 | 99 | -- | 126 | 99 | 126 | 82 | 109 | 0 | 0 | 99 | 99 |
| 2972 | 462 | 160 | 1440 | 160 | -- | -- | -- | -- | 5 | C | 03/01-02/28 | 100 | 59 | -- | 59 | 59 | 59 | 48 | 48 | 0 | 0 | 59 | 59 |
| 2973 | 463 | 200 | 520 | 200 | -- | -- | -- | -- | 6 | C | 03/01-02/28 | 100 | 68 | -- | 68 | 68 | 68 | 54 | 54 | 0 | 0 | 68 | 68 |
| 2974 | 464 | 401 | 15280 | 401 | -- | -- | -- | -- | 10 | C | 03/01-02/28 | 100 | 115 | -- | 115 | 115 | 115 | 92 | 92 | 0 | 0 | 115 | 115 |
| 2976 | 466 | 120 | 5000 | 120 | -- | -- | -- | -- | 2 | C | 03/01-02/28 | 100 | 24 | -- | 24 | 24 | 24 | 21 | 21 | 0 | 0 | 24 | 24 |
| 2977 | 467 | 320 | 9840 | 320 | -- | -- | -- | -- | 5 | C | 03/01-02/28 | 100 | 64 | -- | 64 | 64 | 64 | 60 | 60 | 0 | 0 | 64 | 64 |
| 2978 | 468 | 400 | 2600 | 355 | 45 | -- | -- | -- | 11 | C | 03/01-02/28 | 100 | 134 | -- | 138 | 134 | 138 | 127 | 131 | 0 | 0 | 134 | 134 |
| 2979 | 469 | 160 | 1920 | 160 | -- | -- | -- | -- | 5 | C | 03/01-02/28 | 100 | 53 | -- | 53 | 53 | 53 | 45 | 45 | 0 | 0 | 53 | 53 |
| 2980 | 470 | 969 | 680 | 935 | 34 | -- | -- | -- | 23 | C | 03/01-02/28 | 100 | 270 | -- | 273 | 270 | 273 | 257 | 260 | 0 | 0 | 270 | 270 |

YEARLONG AND SEASON AND NUMBER ALLOTMENTS (continued)

|  |  |  |  | PUBLIC LAND RANGE CONDITION |  |  |  |  |  |  |  | CURRENT USE |  |  | PUBLIC |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | TP | # & CLS | SEASON | % PUBLIC | PUBLIC AUMS | OTHER AUMS | POTENTIAL AUMS | ALTN. A |  | ALTN. B |  | ALTN. C |  | ALTN. D |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ST | LT | ST | LT | ST | LT | ST | LT |
| 2981 | 471 | 1004 | 4880 | 973 | 31 | -- | -- | -- | 22 C | 03/01-02/28 | 100 | 268 | -- | 270 | 268 | 270 | 198 | 200 | 0 | 0 | 268 | 268 |
| 2982 | 472 | 712 | 5000 | 649 | 63 | -- | -- | -- | 16 C | 03/01-02/28 | 100 | 188 | -- | 194 | 188 | 194 | 162 | 178 | 0 | 0 | 188 | 188 |
| 2983 | 473 | 1071 | 4360 | 901 | 170 | -- | -- | -- | 28 C | 03/01-02/28 | 100 | 330 | -- | 345 | 330 | 345 | 267 | 282 | 0 | 0 | 330 | 330 |
| 2986 | 476 | 120 | 2440 | 120 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 24 | -- | 24 | 24 | 24 | 22 | 22 | 0 | 0 | 24 | 24 |
| 2987 | 477 | 415 | 680 | 357 | 58 | -- | -- | -- | 7 C | 03/01-02/28 | 100 | 79 | -- | 84 | 79 | 84 | 58 | 63 | 0 | 0 | 79 | 79 |
| 2988 | 478 | 80 | 1440 | 80 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 20 | -- | 20 | 20 | 20 | 16 | 16 | 0 | 0 | 20 | 20 |
| 2990 | 480 | 320 | 2880 | 320 | -- | -- | -- | -- | 4 C | 03/01-02/28 | 100 | 50 | -- | 50 | 50 | 50 | 0 | 0 | 0 | 0 | 50 | 50 |
| 2991 | 481 | 628 | 160 | 548 | 60 | 20 | -- | -- | 14 C | 03/01-02/28 | 100 | 167 | -- | 176 | 167 | 176 | 70 | 79 | 0 | 0 | 167 | 167 |
| 2993 | 483 | 1600 | 9465 | 1600 | -- | -- | -- | -- | 24 C | 03/01-02/28 | 100 | 288 | -- | 288 | 288 | 288 | 230 | 230 | 0 | 0 | 288 | 288 |
| 2998 | 488 | 200 | 3000 | 200 | -- | -- | -- | -- | 5 C | 03/01-02/28 | 100 | 62 | -- | 62 | 62 | 62 | 56 | 56 | 0 | 0 | 62 | 62 |
| 3000 | 490 | 80 | 600 | 80 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 22 | -- | 22 | 22 | 22 | 16 | 16 | 0 | 0 | 22 | 22 |
| 3001 | 491 | 66 | 3280 | 26 | 40 | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 20 | -- | 24 | 20 | 24 | 18 | 22 | 0 | 0 | 20 | 20 |
| 3002 | 492 | 40 | 2918 | -- | 40 | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 8 | -- | 12 | 8 | 12 | 8 | 12 | 0 | 0 | 8 | 8 |
| 3003 | 493 | 1713 | 5905 | 1683 | 30 | -- | -- | -- | 27 C | 03/01-02/28 | 100 | 317 | -- | 319 | 317 | 319 | 0 | 0 | 0 | 0 | 317 | 317 |
| 3008 | 498 | 610 | 2880 | 610 | -- | -- | -- | -- | 9 C | 03/01-02/28 | 100 | 111 | -- | 111 | 111 | 111 | 87 | 87 | 0 | 0 | 111 | 111 |
| 3011 | 501 | 54 | 1800 | 54 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 16 | -- | 16 | 16 | 16 | 16 | 16 | 0 | 0 | 16 | 16 |
| 3012 | 502 | 229 | 5000 | 114 | 115 | -- | -- | -- | 6 C | 03/01-02/28 | 100 | 70 | -- | 81 | 70 | 81 | 59 | 70 | 0 | 0 | 70 | 70 |
| 3013 | 503 | 26 | 400 | -- | 26 | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 13 | -- | 20 | 13 | 20 | 0 | 7 | 0 | 0 | 13 | 13 |
| 3014 | 504 | 992 | 4000 | 992 | -- | -- | -- | -- | 25 C | 03/01-02/28 | 100 | 303 | -- | 303 | 303 | 303 | 303 | 303 | 0 | 0 | 303 | 303 |
| 3015 | 505 | 1122 | 10320 | 1059 | 23 | 40 | -- | -- | 27 C | 03/01-02/28 | 100 | 321 | -- | 332 | 321 | 332 | 246 | 257 | 0 | 0 | 321 | 321 |
| 3016 | 506 | 81 | 320 | 81 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 23 | -- | 23 | 23 | 23 | 17 | 17 | 0 | 0 | 23 | 23 |
| 3017 | 507 | 188 | 3160 | 188 | -- | -- | -- | -- | 5 C | 03/01-02/28 | 100 | 64 | -- | 64 | 64 | 64 | 61 | 61 | 0 | 0 | 64 | 64 |
| 3018 | 508 | 320 | 800 | 320 | -- | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 32 | -- | 32 | 32 | 32 | 0 | 0 | 0 | 0 | 32 | 32 |
| 3020 | 510 | 80 | 3440 | 80 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 23 | -- | 23 | 23 | 23 | 21 | 21 | 0 | 0 | 23 | 23 |
| 3021 | 511 | 40 | 200 | -- | 40 | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 12 | -- | 16 | 12 | 16 | 9 | 13 | 0 | 0 | 12 | 12 |
| 3022 | 512 | 469 | 800 | 469 | -- | -- | -- | -- | 7 C | 03/01-02/28 | 100 | 84 | -- | 84 | 84 | 84 | 0 | 0 | 0 | 0 | 84 | 84 |
| 3023 | 513 | 160 | 840 | 160 | -- | -- | -- | -- | 4 C | 03/01-02/28 | 100 | 46 | -- | 46 | 46 | 46 | 46 | 46 | 0 | 0 | 46 | 46 |
| 3024 | 514 | 683 | 1889 | 683 | -- | -- | -- | -- | 12 C | 03/01-02/28 | 100 | 138 | -- | 138 | 138 | 138 | 108 | 108 | 0 | 0 | 138 | 138 |
| 3026 | 516 | 480 | 5190 | 480 | -- | -- | -- | -- | 11 C | 03/01-02/28 | 100 | 137 | -- | 137 | 137 | 137 | 115 | 115 | 0 | 0 | 137 | 137 |
| 3027 | 517 | 39 | 863 | 24 | 15 | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 10 | -- | 12 | 10 | 12 | 7 | 9 | 0 | 0 | 10 | 10 |
| 3028 | 518 | 120 | 3080 | 107 | 13 | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 30 | -- | 31 | 30 | 31 | 26 | 27 | 0 | 0 | 30 | 30 |
| 3029 | 519 | 305 | 4000 | 217 | 88 | -- | -- | -- | 7 C | 03/01-02/28 | 100 | 77 | -- | 85 | 77 | 85 | 67 | 75 | 0 | 0 | 77 | 77 |
| 3030 | 520 | 161 | 1840 | 141 | 20 | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 41 | -- | 43 | 41 | 43 | 18 | 20 | 0 | 0 | 41 | 41 |
| 3031 | 521 | 120 | 2440 | 120 | -- | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 30 | -- | 30 | 30 | 30 | 22 | 22 | 0 | 0 | 30 | 30 |
| 3033 | 523 | 644 | 3840 | 644 | -- | -- | -- | -- | 17 C | 03/01-02/28 | 100 | 214 | -- | 214 | 214 | 214 | 161 | 161 | 0 | 0 | 214 | 214 |
| 3034 | 524 | 880 | 3360 | 880 | -- | -- | -- | -- | 16 C | 03/01-02/28 | 100 | 188 | -- | 188 | 188 | 188 | 137 | 137 | 0 | 0 | 188 | 188 |
| 3037 | 527 | 160 | 5600 | 160 | -- | -- | -- | -- | 4 C | 03/01-02/28 | 100 | 46 | -- | 46 | 46 | 46 | 37 | 37 | 0 | 0 | 46 | 46 |
| 3039 | 529 | 132 | 3840 | 49 | 80 | 3 | -- | -- | 2 C | 03/01-02/28 | 100 | 42 | -- | 50 | 42 | 50 | 36 | 44 | 0 | 0 | 42 | 42 |
| 3040 | 530 | 80 | 4720 | 80 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 23 | -- | 23 | 23 | 23 | 17 | 17 | 0 | 0 | 23 | 23 |
| 3041 | 531 | 495 | 1654 | 495 | -- | -- | -- | -- | 10 C | 03/01-02/28 | 100 | 122 | -- | 122 | 122 | 122 | 97 | 97 | 0 | 0 | 122 | 122 |
| 3042 | 532 | 360 | 2280 | 356 | 4 | -- | -- | -- | 9 C | 03/01-02/28 | 100 | 103 | -- | 103 | 103 | 103 | 77 | 77 | 0 | 0 | 103 | 103 |
| 3043 | 533 | 400 | 7000 | 233 | 167 | -- | -- | -- | 11 C | 03/01-02/28 | 100 | 133 | -- | 148 | 133 | 148 | 116 | 131 | 0 | 0 | 133 | 133 |
| 3045 | 535 | 560 | 580 | 557 | 3 | -- | -- | -- | 7 C | 03/01-02/28 | 100 | 80 | -- | 81 | 80 | 81 | 72 | 73 | 0 | 0 | 80 | 80 |
| 3046 | 536 | 280 | 2270 | 242 | 38 | -- | -- | -- | 6 C | 03/01-02/28 | 100 | 69 | -- | 72 | 69 | 72 | 64 | 67 | 0 | 0 | 69 | 69 |
| 3049 | 539 | 40 | 800 | 40 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 16 | -- | 16 | 16 | 16 | 16 | 16 | 0 | 0 | 16 | 16 |
| 3050 | 540 | 189 | 5720 | 189 | -- | -- | -- | -- | 5 C | 03/01-02/28 | 100 | 54 | -- | 54 | 54 | 54 | 54 | 54 | 0 | 0 | 54 | 54 |

YEARLONG AND SEASON AND NUMBER ALLOTMENTS (continued)

| RECORD NUMBER | ALLOT NUMBER | PUBLIC ACRES | OTHER ACRES | E+G | FAIR | POOR | UNKNOWN | PUBLIC LAND RANGE CONDITION |  |  |  | CURRENT USE |  |  | PUBLIC |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  |  |  | TP | # & CLS | SEASON | % PUBLIC | PUBLIC | OTHER | POTENTIAL | ALTN. A |  | ALTN. B |  | ALTN. C |  | ALTN. D |  |
|  |  |  |  |  |  |  |  |  |  |  |  | AUMS | AUMS | AUMS | ST | LT | ST | LT | ST | LT | ST | LT |
| 3051 | 541 | 160 | 800 | 160 | -- | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 40 | -- | 40 | 40 | 40 | 32 | 32 | 0 | 0 | 40 | 40 |
| 3052 | 542 | 433 | 320 | 403 | 30 | -- | -- | -- | 10 C | 03/01-02/28 | 100 | 121 | -- | 123 | 121 | 123 | 110 | 112 | 0 | 0 | 121 | 121 |
| 3053 | 543 | 564 | 3000 | 564 | -- | -- | -- | -- | 13 C | 03/01-02/28 | 100 | 154 | -- | 154 | 154 | 154 | 132 | 132 | 0 | 0 | 154 | 154 |
| 3055 | 545 | 2985 | 19520 | 2825 | 160 | -- | -- | -- | 53 C | 03/01-02/28 | 100 | 629 | -- | 643 | 629 | 643 | 260 | 274 | 0 | 0 | 629 | 629 |
| 3057 | 547 | 83 | 96 | 83 | -- | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 41 | -- | 41 | 41 | 41 | 41 | 41 | 0 | 0 | 41 | 41 |
| 3060 | 550 | 80 | 1840 | 48 | 32 | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 20 | -- | 23 | 20 | 23 | 17 | 20 | 0 | 0 | 20 | 20 |
| 3062 | 552 | 118 | 13303 | 118 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 26 | -- | 26 | 26 | 26 | 24 | 24 | 0 | 0 | 26 | 26 |
| 3063 | 553 | 120 | 1680 | 120 | -- | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 35 | -- | 35 | 35 | 35 | 33 | 33 | 0 | 0 | 35 | 35 |
| 3064 | 554 | 120 | 320 | 10 | 110 | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 30 | -- | 39 | 30 | 39 | 22 | 31 | 0 | 0 | 30 | 30 |
| 3065 | 555 | 314 | 313 | 246 | 68 | -- | -- | -- | 7 C | 03/01-02/28 | 100 | 79 | -- | 85 | 79 | 85 | 59 | 65 | 0 | 0 | 79 | 79 |
| 3066 | 556 | 290 | 3890 | 290 | -- | -- | -- | -- | 8 C | 03/01-02/28 | 100 | 97 | -- | 97 | 97 | 97 | 97 | 97 | 0 | 0 | 97 | 97 |
| 3070 | 560 | 160 | 1480 | 160 | -- | -- | -- | -- | 3 C | 03/01-02/28 | 100 | 40 | -- | 40 | 40 | 40 | 32 | 32 | 0 | 0 | 40 | 40 |
| 3071 | 561 | 40 | 2980 | 40 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 14 | -- | 14 | 14 | 14 | 12 | 12 | 0 | 0 | 14 | 14 |
| 3072 | 562 | 1003 | 3520 | 941 | 62 | -- | -- | -- | 27 C | 03/01-02/28 | 100 | 328 | -- | 334 | 328 | 334 | 276 | 282 | 0 | 0 | 328 | 328 |
| 3073 | 563 | 40 | 1920 | 40 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 14 | -- | 14 | 14 | 14 | 10 | 10 | 0 | 0 | 14 | 14 |
| 3074 | 564 | 22 | 1340 | 22 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 9 | -- | 9 | 9 | 9 | 9 | 9 | 0 | 0 | 9 | 9 |
| 3075 | 565 | 40 | 760 | 40 | -- | -- | -- | -- | 5 S | 03/01-02/28 | 100 | 15 | -- | 15 | 15 | 15 | 13 | 13 | 0 | 0 | 15 | 15 |
| 3076 | 566 | 40 | 1920 | 40 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 12 | -- | 12 | 12 | 12 | 12 | 12 | 0 | 0 | 12 | 12 |
| 3077 | 567 | 40 | 4440 | 40 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 14 | -- | 14 | 14 | 14 | 12 | 12 | 0 | 0 | 14 | 14 |
| 3078 | 566 | 40 | 3600 | 40 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 13 | -- | 13 | 13 | 13 | 10 | 10 | 0 | 0 | 13 | 13 |
| 3079 | 569 | 40 | 2800 | 40 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 13 | -- | 13 | 13 | 13 | 13 | 13 | 0 | 0 | 13 | 13 |
| 3080 | 570 | 37 | 80 | 37 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 6 | -- | 6 | 6 | 6 | 6 | 6 | 0 | 0 | 6 | 6 |
| 3081 | 571 | 44 | -- | -- | 34 | 10 | -- | -- | 1 C | 03/01-02/28 | 100 | 11 | -- | 16 | 11 | 16 | 0 | 0 | 0 | 0 | 11 | 11 |
| 3082 | 572 | 76 | 2560 | 62 | 14 | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 11 | -- | 12 | 11 | 12 | 9 | 10 | 0 | 0 | 11 | 11 |
| 3083 | 573 | 839 | 200 | 750 | 89 | -- | -- | -- | 10 C | 03/01-02/28 | 100 | 117 | -- | 166 | 117 | 166 | 117 | 166 | 0 | 0 | 117 | 117 |
| 6351 | 021 | 786 | 4127 | 786 | -- | -- | -- | -- | 20 H | 05/01-11/30 | 24 | 33 | 107 | 143 | 143 | 143 | 121 | 121 | 0 | 0 | 143 | 143 |
|  |  |  |  |  |  |  |  |  | 77 C | 05/01-10/31 | 24 | 110 | 352 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 143 | 459 |  |  |  |  |  |  |  |  |  |
| 6352 | 825 | 120 | 13728 | 120 | -- | -- | -- | -- | 2 C | 03/01-02/28 | 100 | 25 | -- | 25 | 25 | 25 | 25 | 25 | 0 | 0 | 25 | 25 |
| 6353 | 826 | 880 | 11838 | 880 | -- | -- | -- | -- | 12 C | 03/01-02/28 | 100 | 139 | -- | 139 | 139 | 139 | 139 | 139 | 0 | 0 | 139 | 139 |
| 6355 | 828 | 3127 | 21935 | 3127 | -- | -- | -- | -- | 32 C | 03/01-02/28 | 100 | 386 | -- | 386 | 386 | 386 | 321 | 321 | 0 | 0 | 386 | 386 |
| 6356 | 829 | 413 | 1280 | 413 | -- | -- | -- | -- | 5 C | 03/01-02/28 | 100 | 58 | -- | 58 | 58 | 58 | 48 | 48 | 0 | 0 | 58 | 58 |
| 6358 | 831 | 963 | 3185 | 963 | -- | -- | -- | -- | 8 C | 03/01-02/28 | 100 | 97 | -- | 97 | 97 | 97 | 84 | 84 | 0 | 0 | 97 | 97 |
| 6359 | 832 | 201 | 2130 | 201 | -- | -- | -- | -- | 5 C | 03/01-02/28 | 100 | 52 | -- | 52 | 52 | 52 | 52 | 52 | 0 | 0 | 52 | 52 |
| 6360 | 833 | 124 | 282 | 124 | -- | -- | -- | -- | 1 C | 03/01-02/28 | 100 | 8 | -- | 8 | 8 | 8 | 5 | 5 | 0 | 0 | 8 | 8 |
| 6361 | 834 | 5744 | 57870 | 5744 | -- | -- | -- | -- | 50 C | 05/15-11/15 | 100 | 851 | -- | 851 | 851 | 851 | 851 | 851 | 0 | 0 | 851 | 851 |
| 6362 | 835 | 368 | 25737 | 368 | -- | -- | -- | -- | 6 C | 03/01-02/28 | 100 | 72 | -- | 72 | 72 | 72 | 72 | 72 | 0 | 0 | 72 | 72 |
| 6363 | 836 | 3758 | 4127 | 3758 | -- | -- | -- | -- | 91 C | 04/16-12/15 | 69 | 504 | 224 | 504 | 504 | 504 | 504 | 504 | 0 | 0 | 504 | 504 |
| 6364 | 837 | 930 | 19473 | 930 | -- | -- | -- | -- | 17 C | 03/01-02/28 | 100 | 207 | -- | 207 | 207 | 207 | 207 | 207 | 0 | 0 | 207 | 207 |
| 6372 | 836 | 403 | 1044 | 403 | -- | -- | -- | -- | 37 C | 07/16-11/15 | 47 | 54 | 94 | 54 | 54 | 54 | 54 | 54 | 0 | 0 | 54 | 54 |
|  | 846 | 3349 | 1204 | 5491 | -- | -- | -- | -- | 156 C | 07/16-11/15 | 74 | 358 | 266 | 358 | 358 | 358 | 157 | 157 | 0 | 0 | 358 | 358 |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 412 | 360 |  |  |  |  |  |  |  |  |  |
| 6373 | 836 | 776 | -- | 776 | -- | -- | -- | -- | 18 C | 04/16-12/15 | 70 | 99 | 45 | 99 | 99 | 99 | 99 | 99 | 0 | 0 | 99 | 99 |
|  | 846 | 2142 | 1107 | -- | -- | -- | -- | -- | 55 C | 05/01-11/22 | 61 | 229 | 102 | 229 | 229 | 229 | 229 | 229 | 0 | 0 | 229 | 229 |
|  | 114 | 825 | 126 | 825 | -- | -- | -- | -- | 6 C | 03/01-02/28 | 100 | 75 | -- | 75 | 75 | 75 | 75 | 75 | 0 | 0 | 75 | 75 |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 403 | 147 |  |  |  |  |  |  |  |  |  |
| 6375 | 848 | 699 | 4401 | 699 | -- | -- | -- | -- | 13 C | 03/01-02/28 | 100 | 155 | -- | 155 | 155 | 155 | 155 | 155 | 0 | 0 | 155 | 155 |
| 6377 | 850 | 1970 | 5269 | 1970 | -- | -- | -- | -- | 5 C | 03/01-02/28 | 100 | 62 | -- | 176 | 176 | 176 | 27 | 27 | 0 | 0 | 176 | 176 |
|  |  |  |  |  |  |  |  |  | 51 C | 05/01-10/30 | 37 | 114 | 192 |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  | TOTAL |  | 176 | 192 |  |  |  |  |  |  |  |  |  |

# APPENDIX 2.5: AMP RATING CRITERIA AND EVALUATION/IMPLEMENTATION PRIORITY

This point system was used to determine which existing and proposed AMPs would be evaluated/implemented first. Assigned points do not reflect the importance of the resource or criteria, but do reflect the importance of its evaluation.

| COLUMN NO. | FACTOR | POINTS |
|---|---|---|
| 1 | Public Land (Acres) Less than Good | |
| | 0-500 | 0 |
| | 301-600 | 1 |
| | 601-1200 | 2 |
| | 1201-2400 | 4 |
| | 2401+ | 8 |
| 2 | Public Land Range Condition | |
| | 0-10% less than good | 0 |
| | 11-20% | 1 |
| | 21-30% | 2 |
| | 31-40% | 3 |
| | 41-50% | 4 |
| | 51-60% | 5 |
| | 61-70% | 6 |
| | 71-80% | 7 |
| | 81-90% | 8 |
| | 91-100% | 9 |

| COLUMN NO. | FACTOR | POINTS |
|---|---|---|
| 3 | Percent Public Land (Acres) in Allotment | |
| | 0-25 | 1 |
| | 26-50 | 2 |
| | 51-75 | 3 |
| | 76-100 | 4 |
| 4 | Trend | |
| | Up | 0 |
| | Stable | 2 |
| | Down | 4 |
| 5 | Wildlife Habitat | |
| | Winter Range | |
| | Crucial | 2 |
| | General | 1 |
| 6 | Prairie Dog Towns | 2 |
| 7 | Riparian Areas & Woody Draws | 2 |

EXISTING AMPS

| RECORD NO. | 1 | 2 | 3 | 4 | SUB-TOTAL | 5 | 6 | 7 | SUB-TOTAL | GRAND TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| 2084 | 1 | 0 | 1 | 0 | 2 | 2 | | | 2 | 4 |
| 2549 | 1 | 0 | 1 | 2 | 4 | | | | | 4 |
| 2550 | 2 | 1 | 2 | - | 5 | | | | | 5 |
| 2568 | 2 | 0 | 2 | 0 | 4 | 2 | | | 2 | 6 |
| 2727 | 0 | 0 | 4 | 2 | 6 | 2 | | | 2 | 8 |
| 2728 | 2 | 1 | 3 | 2 | 7 | 2 | | | 2 | 9 |
| 2737 | 0 | 0 | 3 | 0 | 3 | 2 | | | 2 | 5 |
| 2738 | 1 | 1 | 2 | 2 | 6 | 2 | | | 2 | 8 |
| 2745 | 0 | 0 | 2 | 2 | 4 | | | | | 4 |
| 2750 | 2 | 0 | 3 | 4 | 9 | 1 | | | 1 | 10 |
| 2752 | 0 | 0 | 2 | 2 | 4 | 2 | | | 2 | 6* |
| 2755 | 1 | 0 | 3 | 2 | 6 | | | | | 6 |
| 2762 | 0 | 0 | 4 | 2 | 6 | | | | | 6* |
| 2763 | 0 | 0 | 2 | 2 | 4 | 2 | | | 2 | 6* |
| 2772 | 2 | 0 | 2 | 0 | 4 | | | | | 4 |
| 2773 | 0 | 0 | 3 | 2 | 5 | 1 | | | 1 | 6* |
| 2774 | 0 | 0 | 3 | 2 | 5 | 1 | | | 1 | 6 |
| 2786 | 1 | 1 | 3 | 2 | 7 | | | | | 7 |
| 2792 | 2 | 1 | 2 | 2 | 7 | | | | | 7 |
| 2793 | 0 | 0 | 3 | 2 | 5 | 1 | | | 1 | 6* |
| 2803 | 2 | 0 | 4 | 0 | 6 | | | | | 6 |
| 2807 | 2 | 5 | 3 | 4 | 14 | | | | | 14 |
| 2824 | 0 | 0 | 3 | 2 | 5 | | | | | 5 |
| 2828 | 0 | 0 | 4 | 2 | 6 | | | | | 6* |
| 2829 | 2 | 4 | 2 | 0 | 8 | | | | | 8 |
| 2831 | 0 | 0 | 3 | 2 | 5 | 2 | | | 2 | 7 |
| 2838 | 0 | 0 | 3 | 0 | 3 | | | | | 3* |
| 2861 | 2 | 1 | 3 | 4 | 10 | 2 | | | 2 | 12 |
| 2873 | 1 | 0 | 3 | 2 | 6 | | | | | 6 |
| 2946 | 0 | 0 | 2 | 2 | 4 | | | | | 4 |

PROPOSED AMPS

| RECORD NO. | 1 | 2 | 3 | 4 | SUB-TOTAL | 5 | 6 | 7 | SUB-TOTAL | GRAND TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| 2003 | 0 | 1 | 1 | | 2 | | | | | 2 |
| 2098 | 1 | 3 | 1 | | 5 | | | | | 5 |
| 2109 | 0 | 0 | 1 | | 1 | 2 | | | 2 | 3* |
| 2131 | 0 | 2 | 1 | | 3 | | 2 | | 2 | 5 |
| 2144 | 8 | 0 | 1 | | 9 | 2 | | | 2 | 11 |
| 2217 | 2 | 8 | 1 | | 11 | | | | | 11 |
| 2219 | 1 | 2 | 2 | | 5 | | | | | 5 |
| 2223 | 2 | 1 | 1 | | 4 | 1 | | 2 | 3 | 7 |
| 2225 | 1 | 4 | 1 | | 7 | 1 | | | 1 | 8 |
| 2239 | 1 | 0 | 2 | | 3 | 2 | | | 2 | 5 |
| 2257 | 2 | 1 | 1 | | 4 | | | | | 4 |
| 2292 | 1 | 0 | 1 | | 2 | 2 | | | 2 | 4 |
| 2351 | 2 | 4 | 2 | | 8 | | | | | 8 |
| 2377 | 2 | 0 | 1 | | 3 | 1 | | | 1 | 4 |
| 2514 | 4 | 4 | 1 | | 9 | 1 | | | 1 | 10 |
| 2547 | 8 | 2 | 2 | | 12 | | 2 | | 2 | 14 |
| 2551 | 2 | 1 | 2 | | 5 | 1 | | | 1 | 6 |
| 2555 | 4 | 4 | 2 | | 10 | | | | | 10 |
| 2558 | 8 | 1 | 2 | | 11 | 1 | 2 | | 3 | 14 |
| 2590 | 2 | 8 | 2 | | 12 | | | | | 12 |
| 2591 | 1 | 3 | 2 | | 6 | 1 | | | 1 | 7 |
| 2624 | 2 | 5 | 2 | | 9 | 1 | | | 1 | 10 |
| 2626 | 4 | 9 | 1 | | 14 | | | | | 14 |
| 2651 | 2 | 5 | 2 | | 9 | | | | | 9 |
| 2672 | 1 | 2 | 2 | | 5 | | | | | 5 |
| 2676 | 2 | 1 | 2 | | 5 | | | | | 5 |
| 2682 | 2 | 2 | 3 | | 8 | | | | | 8 |
| 2691 | 0 | 0 | 2 | | 2 | | | 2 | 2 | 4* |
| 2744 | 0 | 0 | 3 | | 3 | 1 | | | 1 | 4* |
| 2748 | 0 | 0 | 2 | | 2 | | | | | 2* |
| 2802 | 0 | 0 | 3 | | 3 | | | 2 | 2 | 5 |
| 2804 | 2 | 0 | 2 | | 4 | | | | | 4 |

| RECORD NO. | 1 | 2 | 3 | 4 | SUB-TOTAL | 5 | 6 | 7 | SUB-TOTAL | GRAND TOTAL |
|---|---|---|---|---|---|---|---|---|---|---|
| 2810 | 0 | 0 | 3 | | 3 | | | | | 3 |
| 2815 | 1 | 0 | 3 | | 4 | | | | | 4 |
| 2816 | 1 | 0 | 3 | | 4 | | 2 | | 2 | 6 |
| 2817 | 1 | 1 | 2 | | 4 | | | | | 4 |
| 2818 | 0 | 0 | 3 | | 3 | 2 | 2 | | 3 | 7 |
| 2819 | 1 | 1 | 2 | | 4 | | | | | 4 |
| 2822 | 0 | 1 | 3 | | 4 | | | | | 4 |
| 2823 | 0 | 0 | 2 | | 2 | | 2 | | 2 | 4 |
| 2827 | 1 | 2 | 3 | | 6 | 2 | | | 2 | 8 |
| 2848 | 0 | 0 | 3 | | 3 | | | | | 3 |
| 2851 | 0 | 0 | 2 | | 2 | | | | | 2* |
| 2911 | 4 | 1 | 1 | | 6 | 1 | | | 1 | 7 |
| 2932 | 0 | 0 | 2 | | 2 | | | | | 2* |
| 2941 | 0 | 0 | 1 | | 1 | 2 | | | 2 | 3 |
| 2957 | 1 | 2 | 1 | | 4 | | | | | 4 |
| 2958 | 0 | 0 | 3 | | 3 | 2 | | | 2 | 5 |
| 2994 | 0 | 0 | 2 | | 2 | 1 | | | 1 | 2* |
| 2995 | 1 | 1 | 2 | | 4 | | | | | 4 |
| 2999 | 1 | 1 | 2 | | 4 | | | | | 4 |
| 3004 | 0 | 0 | 1 | | 1 | | | | | 1 |
| 3005 | 0 | 0 | 2 | | 2 | 2 | | | 2 | 4* |
| 3006 | 0 | 0 | 2 | | 2 | | | | | 2 |
| 3010 | 0 | 0 | 3 | | 3 | | | | | 3* |
| 3025 | 0 | 0 | 1 | | 1 | | | | | 1* |
| 3032 | 0 | 0 | 2 | | 2 | 1 | | | 1 | 3 |
| 3054 | 0 | 0 | 1 | | 1 | | | | | 1* |
| 3056 | 0 | 0 | 1 | | 1 | 2 | | | 2 | 3* |
| 3058 | 0 | 0 | 2 | | 2 | 2 | | | 2 | 4 |
| 3059 | 0 | 0 | 3 | | 3 | | | | | 3 |
| 6374 | 0 | 0 | 3 | | 3 | 2 | | | 2 | 5 |
| 6376 | 0 | 0 | 3 | | 3 | 2 | | | 2 | 5* |

* No public land identified as less than good

# APPENDIX 2.6: MONTANA BLM PRAIRIE DOG POLICY AS OF APRIL 1980

The management of prairie dog habitats on public lands in Montana, administered by the Bureau of Land Management (BLM), is a controversial issue because of the conflicting interests of a concerned public. More than 100 public comments were received in response to a draft Habitat Management Plan for the Prairie Dog Ecosystem distributed by BLM. This document was widely reviewed by citizens, private organizations and public agencies throughout the United States. Comments ranged from those favoring total preservation of prairie dogs to those advocating large scale population reductions.

BLM policy for managing prairie dog habitat was formulated after careful review of all public comments received, and consideration of applicable Federal and state laws and regulations. This policy is intended to be responsive to those comments and to BLM's legal mandates.

The Bureau recognizes the authority of the State of Montana for management of resident wildlife species, including prairie dogs. Any population management on public land will be accomplished in cooperation with the appropriate state agencies.

All prairie dog towns on public land will be inventoried and examined for presence of associated wildlife species including threatened or endangered species. The Bureau will cooperate where feasible with other agencies, universities and private groups to accomplish inventories and ecological studies.

The BLM recognizes the prairie dog ecosystem as an integral part of the prairie environment and its perpetuation should be consistent with multiple use management of public lands. The following policies shall apply in this regard:

1. Selected prairie dog towns will be maintained at a determined level to support a viable population of prairie dogs for public use. Public uses include nature study, scientific research, photography, educational study and sport hunting.
2. Selected prairie dog towns will be maintained at a determined level to provide habitats for associated wildlife species. Prairie dog towns are used by more than 20 wildlife species of which 6 have been designated as species of special concern by Montana Department of Fish, Wildlife and Parks.
3. Selected prairie dog towns will be maintained at a determined level to provide habitat for species designated as threatened or endangered by Federal and state laws. Currently, the black-footed ferret is the only endangered species known to be associated with prairie dog towns, which are primary habitat for this mammmal. Prairie dog towns on public lands will be maintained to support at least one wild self-sustaining population of ferrets in Montana as prescribed by the Fish and Wildlife Service's Black-Footed Ferret Recovery Plan.

Although some prairie dog towns may be managed primarily for wildlife and recreational values, others not selected for these purposes will be subject to multiple use management. Where prairie dogs are reported to damage public and adjoining private rangelands the following policy shall apply:

1. Where it has been documented through field investigation that prairie dogs cause unacceptable damage to public resources, such as soil loss or destruction of vegetation, a variety of land treatments including prairie dog control will be considered for rehabilitating rangelands. Other treatments may include such practices as watershed improvements and manipulation of livestock grazing. Prairie dog control will be carried out by appropriate state and Federal agencies using techniques recommended by them and approved by BLM. Sport hunting of prairie dogs, as permitted under state law, is recognized as a legitimate recreational use of public lands; hunters may be directed to towns approved for control.
2. Before control plans for any prairie dog towns can be approved by BLM, each town must be intensively inventoried for threatened and endangered species. If such species are present, any proposal for control must clearly demonstrate that prairie dog control will not jeopardize the continued existence of the species or destroy or adversely modify its habitat.
3. All approved control plans will be fully coordinted with appropriate state and Federal agencies.

The BLM recognizes implementing this policy will require close coordination with Federal and state agencies and private landowners. These include, but are not limited to, Montana Department of Fish, Wildlife and Parks, Montana Department of Livestock, United States Fish and Wildlife Service, livestock operators on public lands, and private landowners whose property adjoins public land.

Source: BLM, 1980.

# APPENDIX 2.7: ALTERNATIVE IMPLEMENTATION COSTS

The cost of implementing each alternative is shown below. Cost items included are: construction (labor and materials), overhead (project implementation, design, administration), and cultural clearance.

| | ALTERNATIVE | | | |
|---|---|---|---|---|
| | A | B | C * | D |
| CONSTRUCTION AND OVERHEAD | | | | |
| Fences @ $2300/mile | | | 16,944,100 | |
| Management | 529,000 | 529,000 | 0 | 0 |
| Enclosure | Unknown | 3,523,600 | 0 | 0 |
| Water Sources | | | | |
| AMPs 1/section @ $3800 ea. | 1,748,000 | 1,748,000 | 0 | 0 |
| NonAMPs 1/2 sections @ $3800 ea. | 1,934,200 | 1,934,200 | 0 | 0 |
| Mechanical Treatment 127,929 Acres @ $28/acre | 3,582,012 | 3.582,012 | 0 | 0 |
| Noxious Weed Control 4500 acres @ $850/acre** | 3,825,000 | 3,825,000 | Unknown | 0 |
| Prairie Dog Control 560 acres @ $5/acre | 2,800 | 0 | 0 | 0 |
| TOTAL | 11,621,012 | 15,141,812 | 16 944,100 | 0 |
| CULTURAL CLEARANCE | | | | |
| Water Sources $55 each | 53,295 | 53,295 | 0 | 0 |
| Mechanical Treatment $2.20/acre | 281,444 | 281,444 | 0 | 0 |
| TOTAL | 334,739 | 334,739 | 0 | 0 |
| GRAND TOTAL | 11,955,751 | 15,476,551 | 16,944,100 | 0 |

* Cost to adjoining landowner to fence off the public land would be $16,944,100 = 1,178,777 acres ÷ 640 acres x 4 = 7367 miles of fence at $2300 per mile.

** Control requires 5 years x $170/acre = $850/acre total treatment cost.

# APPENDIX 2.8A: POSSIBLE MECHANICAL TREATMENTS BY SOIL SERIES**

| Soil Subgroup * and Selected Soil Names | Plowing and Seeding LCC III, IV | Ripping/Chiseling LCC IV, V, VI | Contour Furrowing and Scalping | Waterspreaders (less than 4 % slopes) | Erosion Susceptability |
|---|---|---|---|---|---|
| 1) Clayey, loamy and sandy soils on flood plains, and low terraces. Series: Absher, Alona Banks, Benz, Bowdoin, Cherry, Creed, Dooley, Glendive, Hanly, Harlem, Havre, McRae, Trembles | Banks, Cherry, Creed, Dooley, Glendive, Havre, McRae, Lonna, Trembles | Creed, Harlem, Havre | Absher, Creed, Gerdrum | Cherry, Creed, Dooley, Gerdrum, Havre, Lonna, McRae, Trembles | Moderate |
| 2) Loamy and sandy soils on nearly level to strongly roling (2-15% slopes) fans, benches and terraces. Series: Beaverton, Farland, Farnuf, Lihen, Marmarth, Morton, Parshall, Reeder, Regent, Savage Shambo, Tally, Turner | Farland, Farnuf, Marmarth, Parshall, Reeder, Regent, Shambo, Tally, Turner | | | Farland, Farnuf, Marmarth, Morton, Reeder Regent, Savage Shambo, Tally | Low |
| 3) Loamy and sandy strongly sloping to steep (8-45% slopes) soils on sedimentary bedrock plains and hills. Series: Barkof, Bitton, Blanchard, Brandenburg, Cabba, Cambert, Chamma, Dast, Dimyaw, Flasher, Fleak, Lambert, Lehr, Lisk, Vebar, Wabek, Yetull, Zahill | Chama, Kremlin, Lambert, Lehr, Cambert, | Lehr, | | Chama, Kremlin Lambert, Lehr | High |
| 4) Clayey, loamy and sandy soils on nearly level to strongly sloping (0-15% slopes) sedimentary bedrock plains. Series: Adger, Arnegard, Barvon, Brandenburg, Cabba, Cambert, Chama, Dast, Dimyaw, Farland, Farnuf, Flasher, Fleak, Floweree, Grail, Lambert, Lehr, Lisk, Marmarth, Morton, Norbert Parshall, Reeder, Regent, Savage, Searing, Shambo, Tally, Vebar, Wabek, Zahill | Farland, Farnuf, Floweree, Parshall, Reeder, Savage, Tally, Arnegard, Grail, Lambert, Lehr, Marmarth, Morton, Regent, Searing, Shambo, Vebar | Lehr, Vebar | Reeder, Regent, Savage, Marmarth, Morton | Arnegard, Chama, Farland Farnuf, Floweree, Grail, Lambert, Marmarth, Morton, Parshall, Searing, Shambo Savage, Tally | Low |
| 5) Loamy soils on undulating to strongly rolling (2-15% slopes) glacial till plains. Series: Bowbells, Dooley, Marmarth, Morton, Reeder, Regent, Savage, Telstad, Vida, Williams | Bowbells, Creed, Marmarth, Morton, Regent, Savage, Tealette, Telstad, Williams | | Creed Tealette | Bowbells, Creed, Dooley, Marmarth, Morton, Regent Savage, Williams | Low |

| Soil Subgroup * and Selected Soil Names | Plowing and Seeding LCC III, IV | Ripping/Chiseling LCC IV, V, VI | Contour Furrowing and Scalping | Waterspreaders (less than 4% slopes) | Erosion Susceptability |
|---|---|---|---|---|---|
| 6) Loamy soils on strongly rolling to steep (8-45% slopes) dissected glacial till plains. Series: Cabba, Lambert, Norbert, Sunburst, Tinsley, Williams, Zahill | Lambert, Williams | | | Lambert, Williams | High |
| 7) Clayey, loamy and sandy soils on nearly level to steep (0-45% slopes) fans, benches and terraces. Series: Attewan, Beaverton, Chanta, Chinook, Degrand, Ethridge, Evanston, Gerdrum, Kremlin, Lihen, Yamac | Attewan, Chinook, Degrand, Ethridge, Evanston, Kremlin, Yamac | | Gerdrum, Ethridge | Attewan, Chinook, Degrand, Ethridge, Evanston, Kremlin, Yamac | Moderate |
| 8) Clayey and sandy soils on strongly sloping to steep (8-45% slopes) dissected sedimentary bedrock plains and hills. Series: Blackhall, Cabbart, Neldore, Rentsac, Twilight, Yawdim | | | | | High |
| 9) Clayey and loamy soils on nearly level to strongly sloping (0-15% slopes) sedimentary bedrock plains. Series: Bonfri, Chinook, Ethridge, Evanston, Forelle, Pinelli | Bonfri, Chinook, Ethridge, Evanston, Forelle, Pinelli, | Ethridge, Evanston, Forelle Pinelli | Ethridge, Evanston, Pinelli | Bonfri, Chinook, Evanston Forelle, Pinelli | Low |
| 10) Clayey and loamy soils on nearly level to hilly (0-25% slopes) glacial till plains. Series: Lambert, Vida, Williams, Zahill | Vida, Williams | | | Vida, Williams | Moderate |

| Soil Subgroup * and Selected Soil Names | Plowing and Seeding LCC III, IV | Ripping/Chiseling LCC IV, V, VI | Contour Furrowing and Scalping | Waterspreaders (less than 4% slopes) | Erosion Susceptability |
|---|---|---|---|---|---|
| 11) Clayey and loamy soils on nearly level to steep (0-45% slopes) fans, benches, and terraces. Series: Attewan, Busby, Degrand, Gerdrum, Pinelli, Weingart, Yamac | Attewan, Busby, Degrand, Gerdrum, Yamac | Pinelli | Gerdrum, Weingart | Attewan, Creed Degrand, Gerdrum, Pinelli Yamac | High |
| 12) Clayey, loamy and sandy soils on strongly sloping to steep (8-45% slopes) dissected plains and hills. Series: Abor, Archin, Armells, Birney, Blackhall, Blanchard, Busby, Cabbart, Cambeth, Chinook, Cooers, Delpoint, Kirby, Kobar, Kremlin, Lambeth, Neldore, Nihill, Parchin, Pierre, Rentsac, Yamac, Yawdim, Yetull | Busby, Cambeth, Chinook, Delpoint, Kobar, Kremlin, Lambeth, Lonna | | | Cambeth, Chinook, Kobar, Kremlin, Lambeth, Lonna | High |
| 13) Clayey, loamy and sandy soils on nearly level to moderately steep (0-25% slopes) sedimentary bedrock plains. Series: Absher, Alona, Archin, Armells, Arnegard, Assiniboine, Birney, Bitton, Blackhall, Bonfri, Busby, Cabbart, Cambeth Chinook, Cooers, Creed, Delpoint, Ethridge, Evanston, Floweree, Forelle, Gerdrum, Kirby, Kobar, Kremlin, Lambeth, Marias, Marmarth, Marvan, McRae, Parchin, Tealer, Vebar, Yamac | Assiniboine, Busby, Chinook, Creed, Ethridge, Evanston, Floweree, Gerdrum, Lambeth, Yamac | | Absher, Creed, Gerdrum, Tealer | Arnegard, Assiniboine, Bonfri, Cambeth, Chinook, Creed, Evanston, Floweree, Gerdrum, Kobar Kremlin, Marias Marmarth, McRae, Yamac | Moderate |

| Soil Subgroup * and Selected Soil Names | Plowing and Seeding LCC III, IV | Ripping/Chiseling LCC IV, V, VI | Contour Furrowing and Scalping | Waterspreaders (less than 4% slopes) | Erosion Susceptability |
|---|---|---|---|---|---|
| 14) Clayey soils on strongly sloping to steep (8-45% slopes) dissected shale plains. Series: Abor, Bascovy, Bickerdyke, Boettcher, Dilts, Julin, Kobar, Neldore, Yawdim | Kobar, Bascovy | Bascovy,<br>Bickerdyke,<br>Boettcher | | Kobar | High |
| 15) Clayey, silty and sandy soils on highly dissected (25-70% slopes) river breaks and badlands. Series: Abor, Badlands (misc. land type), Blackhall, Cabbart, Neldore, Yawdim, shales and sandstone rock outcrops | | | | | High |

* See legend and soils map in Map Supplement

** Soil series list will be updated as more data become available. Treatments will be made after on site investigations during activity plans.

# APPENDIX 2.8B: SOIL RESPONSE TO RANGE TREATMENTS

| Soil Subgroup * and Selected Soil Names | A. Mechanical Treatments needed in combination with grazing treatments (series) | B. Respond to Grazing Treatments improve to next condition class in 15 years (series) | C. Unsuited for Treatments, unresponsive to grazing management |
|---|---|---|---|
| 1) Clayey, loamy and sandy soils on flood plains, and low terraces. Series are Absher, Alona, Banks, Benz, Bowdoin, Cherry, Creed, Dooley, Glendive, Hanly, Harlem, Havre, McRae, Trembles, Tealer | Absher, Benz, Cherry, Dooley, Gerdrum, Havre, McRae, Trembles Tealer | Alona, Banks, Bowdoin, Glendive, Hanly, Harlem, Lollie, McKenzie, Trembles | |
| 2) Loamy and sandy soils on nearly level to strongly rolling (2-15% slopes) fans, benches and terraces. Series are Beaverton, Farland, Farnuf, Lihen, Marmarth, Morton, Parshall, Reeder, Regent, Savage, Shambo, Tally, Turner | Farland, Farnuf, Marmarth, Morton, Parshall, Reeder, Turner, Shambo, Tally | Lihen, Regent, Savage | Beaverton, Wabek |
| 3)Loamy and sandy; strongly sloping To steep (8-45% slopes) soils on sedimentary bedrock plains and hills. Series: Barkof, Bitton, Blanchard Brandenberg, Cabba, Cambert, Chama, Dast, Dimyaw, Flasher, Fleak, Lambert, Lehr, Lisk, Yebar, Wabek, Yetull | Chama, Kremlin, Lambert, Lehr | Blanchard, Cambert, Dast, Flasker, Fleak, Lisk, Vebar, Zahill, Yetull | Barkof, Bitton, Brandenburg, Cabba, Dimyaw, Wabek |
| 4) Clayey, loamy and sandy soils, on nearly level to strongly sloping (0-15% slopes), sedimentary bedrock plains. Series: Adger, Arnegard, Barvon, Brandenberg, Cabba, Cambert, Chama, Dast, Dimyaw, Farland, Farnuf, Flasher, Fleak, Floweree, Grail, Lambert, Lehr, Lisk, Marmarth, Morton, Norbert, Parshall Reeder, Regent, Savage, Searing, Shambo, Tally, Vebar, Wabek, Zahill | Adger, Arnegard, Chama, Farland Farnuf, Floweree, Grail, Lambert, Lehr, Macar, Marmarth, Morton, Reeder, Regent, Savage, Searing, Tally, Vebar | Barvon, Cambert, Dast, Flasher, Fleak, Norbert, Zahill, Cabba, Dimyaw, Norbert, Parshall | Brandenburg, Wabek |

| Soil Subgroup * and Selected Soil Names | A. Mechanical Treatments needed in combination with grazing treatments (series) | B. Respond to Grazing Treatments improve to next condition class in 15 years (series) | C. Unsuited for Treatments, unresponsive to grazing management |
|---|---|---|---|
| 5) Loamy soils, on undulating to strongly rolling (2-15% slopes) glacial till plains. Series: Bowbells, Dooley, Marmarth, Morton, Reeder, Regent, Savage, Telstad, Vida, Williams | Bowbells, Creed, Dooley, Marmarth, Morton, Regent, Savage, Tealette, Telstad, Williams | Vida, Zahill | |
| 6) loamy soils on strongly rolling to steep (8-45% slopes) dissected glacial till plains. Series: Cabba, Lambert, Norbert, Sunburst, Tinsley, Williams, Zahill | Lambert, Williams | Sunburst, Zahill, Cabba, Norbert | Tinsley |
| 7) Clayey, loamy and sandy soils on nearly level to steep (0-45% slopes) fans, benches, and terraces. Series: Attewan, Beaverton, Chanta, Chinook, Degrand, Ethridge, Evanston, Kremlin, Lihen, Twilight, Yamac | Attewan, Degrand, Ethridge, Evanston, Kremlin, Yamac | Lihen, Twilight, Chinook | Beaverton |
| 8) Clayey and sandy soils on strongly sloping to steep (8-45% slopes) dissected sedimentary bedrock plains and hills. Series: Cabbart, Blackhall, Neldore, Rentsac, Twilight, Yawdim | | Neldore, Riedel, Twilight, Cabbart | Blackhall, Rentsac |

| Soil Subgroup * and Selected Soil Names | A. Mechanical Treatments needed in combination with grazing treatments (series) | B. Respond to Grazing Treatments improve to next condition class in 15 years (series) | C. Unsuited for Treatments, or unresponsive to grazing management |
|---|---|---|---|
| 9) Clayey and loamy soils on nearly level to strongly sloping (0-15% slopes) sedimentary bedrock plains. Series: Bonfri, Chinook, Ethridge Evanston, Forelle, Pinelli | Bonfri, Ethridge, Evanston, Forelle, Pinelli | Chinook | |
| 10) Clayey and loamy soils on nearly level to hilly (0-25% slopes) glacial till plains. Series: Theony, Vida, Williams, Zahl, Zahill | Theony | Williams, Vida, Zahl | |
| 11) Clayey and loamy soils on nearly level to steep (0-45% slopes) fans benches and terraces. Series: Busby, Attewan, Cabbart, Degrand,Delpoint Delpoint, Gerdrum, Pinelli, Weingart, Yamac | Attewan, Creed, Degrand, Yamac, Pinelli, Weingart | Busby, Cabbart, Delpoint, Yawdim | |
| 12) Clayey, loamy and sandy soils on nearly level to steep (8-45% slopes) dissected sedimentary bedrock plains and Series: Abor, Archin, Armells, Birney, Blackhall, Blanchard, Busby, Cabbart, Cambeth, Chinook, Cooers, Creed, Delpoint, Gerdrum, Kirby, Kobar, Kremlin, Lambeth, Lisam, Nobe, Neldore, Nihill, Parchin, Vaeda, Vanda, Yawdim, Yetull | Cambeth, Delpoint, Gerdrum, Kobar, Kremlin, Lambeth, Lonna, Marias, Archin, Parchin | Armells, Birney, Busby, Blanchard, Chinook, Delpoint, Lisam, Neldore, Riedel, Twilight Yawdim, Yetull | Blackhall, Cabbart, Nobe, Vaeda, Vanda, Kirby, Nihill Rentsac |

| Soil Subgroup * and Selected Soil Names | A. Mechanical Treatments needed in combination with grazing treatments (series) | B. Respond to Grazing Treatments improve to next condition class in 15 years (series) | C. Unsuited for Treatments, unresponsive to grazing management |
|---|---|---|---|
| 13) Clayey, loamy and sandy soils on nearly level to moderately steep (0-25% slopes) sedimentary bedrock plains. Series: Absher, Alona, Archin, Armelis, Arnegard Assiniboine, Birnev, Bitton, Blackhall, Bonfri Busby, Cabbart, Cambeth, Chinook, Cooers, Creed, Delpoint, Ethridge, Evanston, Floweree, Forelle, Gerdrum, Kirby, Kobar, Kremlin, Lambeth, Marias, Marmarth, Marvan, McRae, Nobe, Parchin, Tealer, Valda, Vanda, Yamac | Absher, Archin, Arnegard, Assiniboine, Busby, Bitton, Bonfri, Cambeth, Chinook, Creed, Cooers, Delpoint, Ethridge, Evanston, Floweree, Forelle, Gerdrum, Kremlin, Lambeth, Lonna, Marias, Marmarth, McRae, Parchin, Vebar, Yamac | Alona, Armelis, Birney, Bitton, Cabbart, Delpoint, Kobar, Marias, Marvan, Riedel, Thebo, Twilight | Blackhall, Kirby, Nobe, Vaeda, Vanda |
| 14) Clayey soils on nearly level to steep (8-45% slopes) dissected shale plains. Series: Abor, Bascovy,Bickerdyke, Boettcher, Dilts, Julin, Kobar, Nobe, Neldore, Vaeda, Vanda, Yawdim | Absher, Creed, Gerdrum | Abor, Bascovy, Bickerdyke Dilts, Dimyaw, Gomar, Julin, Kobar, Lisam, Midway, Neldore, Yawdim | Boettcher, Vaeda, Nobe, Vanda |
| 15) Clayev, silty and sandy soils on highly dissected river breaks and badlands. Series: Abor, Badlands (misc. land type), Blackhall, Cabbart, Neldore, Yawdim, shales and sandstones rock outcrops | | | |

* See legend for soils map in Map Supplement

**Soil series list will be updated as more data becomes available. Treatments will be made after on site investigations during activity plans.

# APPENDIX 3.1: SELECTED VEGETATION AND RANGE MANAGEMENT CHARACTERISTICS OF THE 15 SOIL SUBGROUPS

| Soil Subgroup * and Selected Soil Names | Percent of Public Land (1) | Vegetation Type (2) | Key Species | Increasers | Response to Grazing Management | Suitability for Mechanical Treatments | Other Suitable Land Treatments | Other |
|---|---|---|---|---|---|---|---|---|
| 1) Clayey, loamy and sandy soils on nearly level to strongly sloping (0-15% slopes) flood plains, low terraces. Series: Absher, Alona, Banks, Benz, Bowdoin, Cherry, Creed, Dooley, Dimmick, Glendive, Hanly, Harlem, Havre, Haverlon | 6.4% (109,000) | grasslands and deciduous woodlands | western and thickspike wheatgrass, green needlegrass, willows, cottonwood | wildrose, snowberry, cactus, bluegrass | Responds quickly, livestock congregate here | Suited on slopes <12% on selected series | Waterspreaders on slopes <4%, prescribed burning, seeding, fertilization | Benz soils is strongly alkaline. Bowdoin has a heavy clay surface texture. |
| 2) Loamy and sandy soils on nearly level to strongly rolling (2-15% slopes) dissected glacial till plains. Series: Cabba, Lambert, Norbert, Sunburst, Tinsley, Williams, Zahl | 1.5% ( 26,000) | grassland | western wheatgrass, green needlegrass | blue grama, prairie Junegrass | Moderate to slow | Suited on slopes <12% on selected series | Prescribed burning, fertilization, seeding | Wind erosion on unprotected soils |
| 3) Loamy and sandy, strong sloping (8-45% slopes) soils on sedimentary bedrock plains and hills. Series: Barkof, Bitton, Blanchard, Brandenburg, Cabba, Cambert, Dast, Dimyaw, Flasher, Fleak, Lambert, Lehr, Lisk, Vebar, Wabek, Yetull | 9.3% (159,000) | grassland | western wheatgrass, green needlegrass | yucca, blue grama, red three awn, needle-and-thread | Moderate | Well suited on slopes <12% on selected series | Prescribed burning, fertilization | Shallow soils and steep slopes will limit activities |
| 4) Clayey, loamy and sandy soils, on nearly level to strongly sloping (0-15% slopes) sedimentary bedrock plains. Series: Adger, Arnegard, Barvon, Brandenburg, Cabba, Cambert, Chama, Dast, Dimyaw, Farland, Farnuf, Flasher, Fleak, Floweree, Grail, Lambert, Lehr, Lisk, Marmarth, Morton, Norbert, Parshall, Reeder, Regent, Savage, Searing, Shambo, Tally, Vebar, Wabek, Zahill | 10.5% (180,000) | grassland and grassland sagebrush | western wheatgrass, needle-and-thread | needle-and-thread, blue grama, clubmoss, fringe sagewort, cactus | Slow due to clubmoss and blue grama | Well suited on slopes <12% on selected series | Prescribed burning, waterspreaders on slopes <4%, seeding, fertilization | Shallow soils will limit activities |
| 5) Loamy soils, undulating to strongly rolling (2-15% slopes) on glacial till plains. Series: Bowbells, Dooley, Marmarth, Morton, Reeder, Regent, Savage, Telstad, Vida, Williams | 5.9% (101,000) | grassland | western wheatgrass, green needlegrass | needle-and-thread grass blue grama, fringe sagewort, cactus | Slow due to clubmoss and blue grama grass | Moderately suited on slopes <8% selected series | Fertilization, prescribed burning, seeding, waterspreaders <4% slopes | Local areas have gravels and stones which influence suitability for mechanical treatment |
| 6) Loamy soils on strongly rolling to steep (*8-45% slopes) on dissected glacial till plains. Series: Cabba, Lambert, Norbert, Sunburst, Tinsley, Williams, Zahill | 0.5% ( 9,000) | grassland | green needlegrass, western and thickspike wheatgrass | needle-and-thread grass blue grama, clubmoss, fringe sagewort, needle-and-thread grass | Slow due to clubmoss and and blue grama | Well suited on slopes <12% on selected series | Fertilization prescribed burning | Local areas have gravels and stones or are shallow which may influence suitability for mechanical treatment |
| 7) Clayey, loamy and sandy soils on nearly level to steep (0-45% slopes) on fans, benches and terraces. Series: Absher, Attewan, Beaverton, Busby, Chanta, Chinook, Degrand, Ethridge, Evanston, Kremlin, Lihen, Marmarth, McRae, Morton, Parshall, Reeder, Regent Rhoades, Sappington, Savage, Searing, Tally, Turner, Vebar, Wabek, Yamac | 1.8% ( 31,000) | grassland | western and thickspike wheatgrass | big sagebrush, fringe sagewort, needle-and-thread grass | Moderate to slow | Well suited on slopes <8% on selected series | Prescribed burning, fertilization, waterspreaders seeding | Wind, erosion on unprotected soils |
| 8) Clayey and sandy soils on strongly sloping to steep (*8 -45% slopes) soils on dissected sedimentary bedrock plains and hills. Series: Blackhall, Midway, Neldore, Rentsac, Travessilla, Twilight Yawdim | 0.4% ( 7,000) | grassland | bluebunch wheatgrass, needle-and-thread grass | blue grama, yucca | Moderate | Poorly suited | | Shallow soils will limit activities |

| Soil Subgroup * and Soil Names | Percent of Public Land (1) | Vegetation Type (2) | Key Species | Increasers | Response to Grazing Management | Suitability for (3) Mechanical Treatments | Other Suitable Land Treatments | Other |
|---|---|---|---|---|---|---|---|---|
| 9) Clayey and loamy soils on nearly level to strongly sloping (0-15% slopes) on sedimentary bedrock plains. Series: Bonfri, Chinook, Ethridge, Evanston, Forelle, Marmarth, Morton, Pinelli, Reeder, Regent, Renohill, Sappington, Terry, Travessilla | 0.5% ( 9,000) | grassland | needle-and-thread grass, thickspike and western wheatgrass | Sandberg bluegrass, big sagebrush, ponderosa pine | Slow to moderate | Well suited on slopes <8% on selected series | Prescribed burning, fertilization, seeding, waterspreaders | Wind erosion on unprotected soils |
| 10) Clayey and loamy soils on nearly level to hilly (0-25% slopes) on glacial till plains. Series: Briggsdale Telstad, Theony, Vida, Williams, Zahl | 0.9% ( 15,000) | grassland | western wheatgrass | blue grama, needle-and-thread grass clubmoss, fringe sagewort | Slow due to clubmoss and blue grama | Well suited on slopes <8% on selected series | Prescribed burning, fertilization, seeding | Local areas have surface stones which influence suitability for mechanical treatment |
| 11) Clayey and loamy soils on nearly level to steep (0-45% slopes) fans, benches and terraces. Series: Absher, Busby, Attewan, Creed, Degrand, Gerdrum McRae, Parchin, Pinelli, Renohill, Rominell, Wanetta, Yamac | 1.0% ( 17,000) | grassland | western and thickspike wheatgrass | big sagebrush, fringe sagewort, needle-and-thread grass | Moderate to rapid | Well suited on slopes <8% on selected series | Prescribed burning, fertilization, seeding, waterspreaders | Wind erosion on unprotected soils |
| 12) Clayey, loamy and sandy soils on strongly sloping to steep (8-45% slopes) on dissected sedimentary bedrock plains and hills. Series: Absher, Alonq, Archin, Armells, Badlands (misc. land type), Birney, Blackhall, Blanchard, Busby, Cabbart, Cambeth, Chinook, Cooers, Creed, Delpoint, Gerdrum, Kirby, Kobar, Kremlin, Lambeth Lisam, Marias, Marvan, Midway, Neldore, Nihill, Parchin, Pendroy, Pierre, Rentsac, Travessilla, Yawdim, Yetull | 44.3% (758,000) | grassland or woodland and grassland | bluebunch and western wheatgrass, needle-and-thread, little bluestem | ponderosa pine, blue grama, yucca juniper | Slow to moderate | Well suited on <8% slopes on selected series | Prescribed burning, fertilization | Wind erosion on unprotected areas. Shallow soils and steep slopes will limit activities. |
| 13) Clayey, loamy and sandy soils on nearly level to moderately steep (0-25% slopes) on sedimentary bedrock plains. Series: Absher, Alona, Archin, Armells, Arnegard, Assiniboine, Birney, Bitton, Blackhall, Bonfri, Busby, Cabbart, Cambeth, Chinook, Cooers, Creed, Delpoint, Ethridge, Evanston, Floweree, Forelle, Gerdrum, Kirby, Kobar, Kremlin Lambeth, Marias, Marmarth, Marvan, McRae, Parchin, Renohill, Terry, Thebo, Vebar, Wanetta, Yamac | 10% (171,000) | grassland | western wheatgrass, little bluestem | bluegrass, ponderosa pine, annual bromes, blue grama | Slow to rapid | Well suited on slopes <12% on selected series | Prescribed burning, fertilization, | Wind erosion on unprotected soils Shallow soils and steep slopes will limit activities |
| 14) Clayey soils on strongly sloping to steep (8-45% slopes) on dissected shale plains. Series: Abor, Absher, Bascovy, Bickerdyke, Boettcher, Creed, Dilts, Gerdrum, Gomar, Julin, Kobar, Lisam, Midway, Neldore, Dimyaw, Yawdim | 3.5% ( 58,000) | ponderosa pine/ grassland | western and thickspike wheatgrass, green needlegrass, prairie sandreed, little bluestem | ponderosa pine, creeping juniper, big sagebrush | Slow to moderate | Poorly suited due to slope | Prescribed burning, fertilization | Wind erosion on unprotected soils Shallow soils and steep slopes will limit activities |
| 15) Clayey, loamy and sandy soils on highly dissected river breaks and badlands. Series: Badlands (misc. land type), Cabbart, Lisam, Vaeda, Yawdim, shale and sandstone rock outcrops | 4.1% ( 70,000) | juniper/ grassland or limber pine/ grassland | bluebunch and western wheatgrass | blue grama, yucca, annuals, weedy forbs, broom snakeweed | Very slow | Not suited due to slope | | Shallow soils and steep slopes will limit activities |

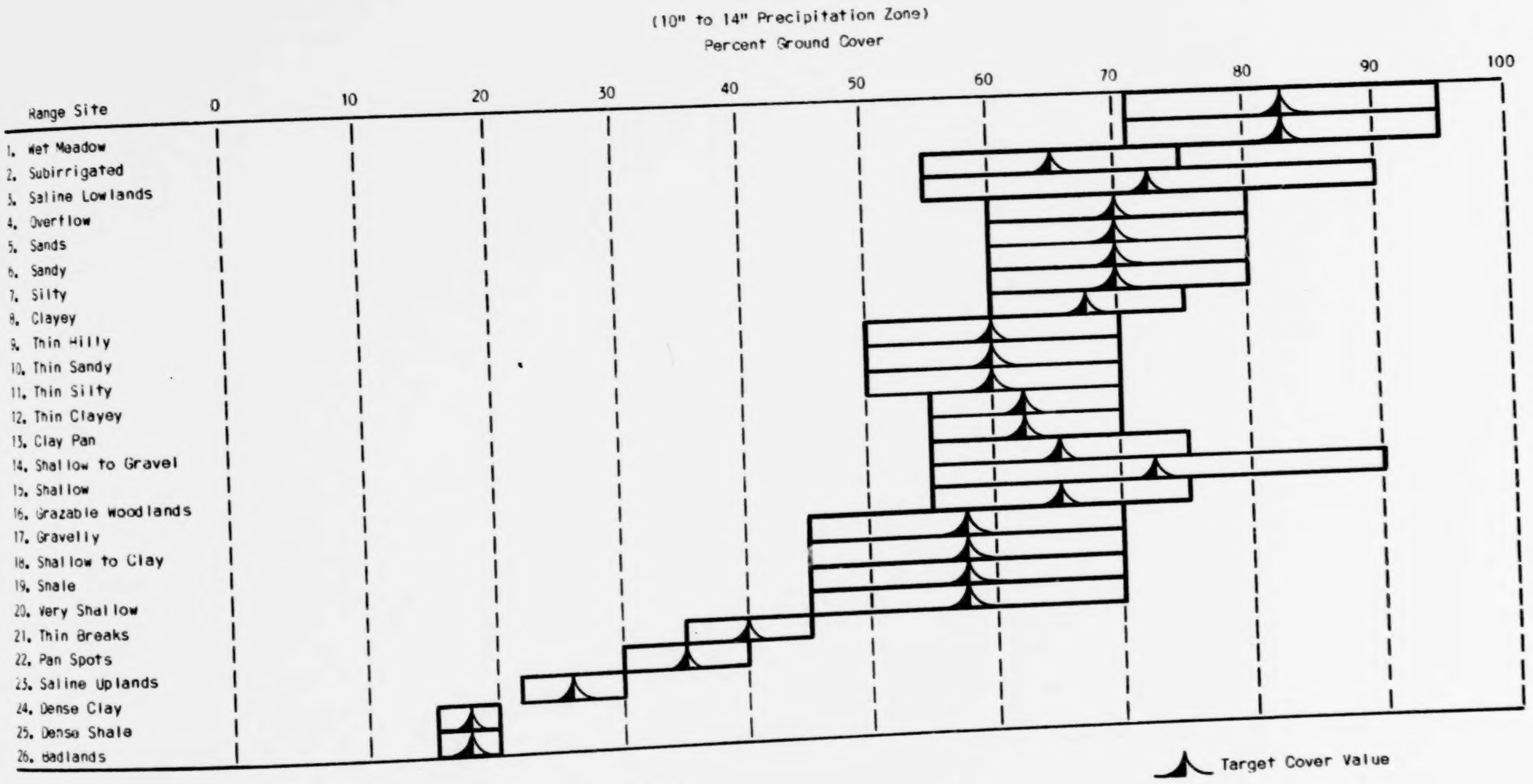
(1) Assume soils are randomly distributed regardless of ownership.

(2) Grasslands are dominated by short and midgrass species.

(3) Mechanical treatments (contour furrowing, scalping, chiseling) subject to on-site investigation of soils.

* See legend for soils map in Map Supplement

# APPENDIX 3.2: SOIL TARGET COVERS ON RANGE SITES



% cover is
Excellent
Condition
x .75 =
Low %
cover.
Target
covers = -
x

*SCS Soil/Range Site are arranged into most productive to least productive.

# APPENDIX 3.3: BIG DRY SOIL SERIES BY SCS RANGE SITES

| RANGE SITE | EXAMPLES OF SOIL SERIES |
|---|---|
| 1. Wet Meadow | Lallie, Lohler |
| 2. Subirrigated | Aeric Fluvaguents, Colvin, Dimmick |
| 3. Saline Lowlands | Alona, Benz, Cherry (saline phase), Gomar, Ustic Torriorthents |
| 4. Overflow | Arnegard, Adger, Cherry, Glendive, Grail, Harlem, Havre, Havrelon, Hanly, Lohler, Lohmiller, McKenzie, Rivra, Torrifluvents, Trembles |
| 5. Sands | Blanchard, Lihen, Hanly, Yetull |
| 6. Sandy | Assiniboine, Banks, Busby, Chanta, Chinook, Cozberg, Dast, Degrand, Dooley, Flasher, Glendive, Lisk, Manning, Parshall, Remmit, Tally, Trembles, Turner, Tusler, Twilight, Vebar |
| 7. Silty | Alona, Arnegard, Attewan, Bainville, Bonfri, Bowbells, Briggsdale, Cambeth, Cambert, Camborthids, Chama, Chanta, Cherry, Cooers, Creed, Cushman, Degrand, Delpoint, Ethridge, Evanston, Farland, Farnuf, Floweree, Forelle, Hillon, Kremlin, Lambert, Lambeth, Lonna, Marmarth, McRae, Morton, Pinelli, Ridgelawn, Reeder, Searing, Shambo, Telstad, Turner, Vanstel, Williams, Yamac, Zahill, Zahl |
| 8. Clayey | Abor, Barkof, Bascovy, Bickerdyke, Boettcher, Bowdoin, Dimmick, Ethridge, Harlem, Havre, Hesper, Hoffmanville, Julin, Kobar, Lohler, Macar, Marias, Marvan, Moreau, Nunn, Pendroy, Regent, Savage, Teigen, Thebo |
| 9. Thin Hilly* | Bitton, Delpoint, Lambert, Nihill, Zahill |
| 10. Thin Sandy | Dast, Flasher, Vebar |
| 11. Thin Silty | Bonfri, Cambeth, Cambert, Chama, Cushman, Delpoint, Marmarth, Nihill, Searing |
| 12. Thin Clayey | Abor, Sunburst |
| 13. Clay Pan | Absher, Adger, Archin, Creed, Elloam, Hovan, Ladner, Parchin, Rhoades, Rominell, Weingart |
| 14. Shallow to Gravel | Beaverton, Wabek, Lehr |
| 15. Shallow | Blackhall, Brandenburg, Cabba, Cabbart, Flasher, Kirby, Rentsac, Riedel |
| 16. Grazable Woodlands | Armells, Barvon, Birney, Bitton, Kirby, Lamdeer, Ringling, Twin Creek |
| 17. Gravelly | Rivra, Tinsley, Bitton |
| 18. Shallow to Clay | Dimyaw, Lisam, Lismas, Midway, Neldore, Norbert, Yawdim |
| 19. Shale | Dilts, Bascovy, Volborg |
| 20. Very Shallow | Kirby, Travessilla, Wibaux |
| 21. Thin Breaks* | Armells, Cabbart, Delpoint, Flasher, Yawdim |
| 22. Pan Spots* | Absher, Gerdrum, Nobe, Tealer, Thoeny |
| 23. Saline Uplands | Louscot |
| 24. Dense Clay | Absher, Lohler, Marias, Tealer, Vaeda, Vanda |
| 25. Dense Shale | Volborg, eroded phase |
| 26. Badlands* | Badlands (a miscellaneous land type, combination of many soils) |

*A combination of other range sites

(a) Due to ongoing SCS and BLM soil surveys, additional soil series will be identified within the EIS area.

(b) Some soil series may be found in more than one range site, depending upon slopes, surface textures, and other factors which influence its production and potential management. Some series are more productive than others, but may be found in the same range site and, hence, have the same soil target cover assigned.

# APPENDIX 3.4: WATER BEARING FORMATIONS

| Rock Unit Youngest to Oldest | Geologic Age | Approximate Thickness (feet) | Lithology | Water Bearing Characteristics | Water Quality |
|---|---|---|---|---|---|
| Alluvium | Quaternary | 0 to 40+ | Sand, gravel, silt, clay | 5 to 1000 gpm reported, most wells yield 10-20 gpm. Most productive aquifer in area, however, areal extent limited to major river valleys | Fair to good quality, used for stock & domestic. Typical dissolved salts are CA, MG, $Na_2So_4$; $HCO_3$ |
| Glacial | Quaternary | Unreported | Fine sand, silt & clay, patchy distribution | Unreported | Unreported |
| Terrace | Quaternary | 0 to 120+ | Sand, gravel, silt, clay | 5 to 500 gpm reported, most wells yield 5 to 20 gpm. Adequate for stock, domestic & small scale irrigation in localized areas | Ranges from highly mineralized to satisfactory for domestic and stock uses |
| Flaxville | Tertiary | 0 to 40+ | sand & gravel patchy distribution | Unreported | Unreported |
| Fort Union | Tertiary | 0 to 1200+ | Interbedded buff sandstone & shale, coal seams also present | 2 to 20 gpm reported most wells yield 2-12 gpm. Most widely used aquifer in E.I.S. area | Adequate for stock & domestic, unsuited for irrigation. Shallow aquifers have 2500-4000 mg/1 dissolved solids. Dominate ions are Na, Mg, $So_4$. Deeper aquifers have 1500-2000 mg/1 and are sodium bicarbonate type. Sandstone squifers are often mineralized while coal seam aquifers are often pure & low in minerals |
| Upper Hell Creek | Cretaceous | 0 to 600± | Irregular & discontinuous interbedded gray-brown sandstone & carbonaceous gray shale | Generally unproductive | Unreported |
| Lower Hell Creek - Fox Hills | Cretaceous | 0 to 500± | Fine to medium grained, cross bedded sandstone | Most producing wells are in southeastern portion of E.I.S. area with yields of 8 gpm | Dissolved solids concentrations range from 500 to 2000 mg/1. Major ions are sodium and bicarbonate. Chloride concentration is greater than in overlying Ft. Union Formation. |
| Bearpaw Confining Layer | Cretaceous | 200 to 1200 | Dark colored shale | Not normally an aquifer, forms a base for the overlying shallow aquifer system. | Unreported |

SOURCE: Montana Water Resources Board, Water Resources Surveys 1960, 1970A, 1970B, 1971A, 1971B; (Stoner and Lewis 1980)

# APPENDIX 3.5: SURFACE QUALITY SURVEY

| Station | | Sampling Date | Discharge cfs | Total Dissolved Solids | Conductivity unhos field | pH Field | Total Akalinity as CaCo, mg/l | Bicarbonate as $HCO_3$ mg/l | Chloride Dissolved as CL mg/l | Nitrate + Nitrate as N mg/l | Total Hardness as $CACO_3$ mg/l | Calcium Dissolved as CA mg/l | Magnesium Dissolved as MG mg/l | Sodium Dissolved as NA mg/l | Potassium Dissolved as K mg/l | Sulfate Dissolved as $SO_4$ mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Muster Creek near Kinsey, Mt. | #1 | 3-15 | 32 | 185 | 300 | 8.4 | 76 | 88 | 1.4 | 0.46 | 39 | 11 | 2.9 | 49 | 3.4 | 69 |
| | | 4-3 | 1.0 | 551 | 865 | 8.3 | 150 | 180 | 2.4 | 0.67 | 96 | 22 | 10 | 150 | 3.0 | 270 |
| | | 5-31 | 0.19 | 1090 | 1610 | 8.4 | 180 | 220 | 3.8 | 3.6 | 110 | 25 | 11 | 310 | 0.4 | 620 |
| | | 7-26 | 0.72 | 830 | 1150 | 8.5 | 220 | 270 | 22 | 2.7 | 140 | 30 | 16 | 180 | 5.9 | 430 |
| Cherry Creek near Terry, Mt. | #2 | 10-5 | E.10 | 2290 | 3170 | 8.4 | 400 | - | 14 | .01 | 640 | 110 | 88 | 520 | 9.7 | 1300 |
| | | 11-7 | E.10 | 2140 | 2990 | 8.3 | 400 | - | 9.8 | .01 | 610 | 110 | 81 | 480 | 8.5 | 1200 |
| | | 4-12 | 29 | 1100 | 1660 | 8.2 | 220 | - | 5.8 | .04 | 410 | 64 | 60 | 200 | 5.6 | 620 |
| | | 5-10 | 6.5 | 1640 | 2350 | 8.3 | 360 | - | 8.9 | .00 | 690 | 120 | 95 | 280 | 6.7 | 910 |
| | | 6-14 | 0.14 | 2130 | 3020 | 8.1 | 380 | - | 8.9 | .00 | 670 | 120 | 91 | 460 | 9.7 | 1200 |
| Seven Mile Creek near Lindsay, Mt | #3 | 10-3 | .45 | 1770 | 2450 | 8.0 | 420 | 510 | 12 | .01 | 940 | 130 | 150 | 280 | 10 | 920 |
| | | 3-13 | 14 | 931 | 1300 | 8.2 | 210 | 260 | 7 | .54 | 460 | 68 | 70 | 140 | 9.4 | 500 |
| | | 4-6 | 8.7 | 1290 | 1740 | 8.0 | 310 | 380 | 7.3 | .07 | 740 | 100 | 120 | 150 | 8.5 | 700 |
| | | 5-10 | 13 | 1450 | 1920 | 8.4 | 360 | 420 | 7.6 | .00 | 850 | 110 | 140 | 170 | 7.8 | 800 |
| | | 6-22 | .47 | 1790 | 2090 | 8.1 | 400 | 490 | 8.6 | .08 | 880 | 120 | 140 | 260 | 8.8 | 1000 |
| Burns Creek near Savage, Mt. | #4 | 1-12 | .44 | 1260 | 1750 | 7.5 | 480 | - | 7.5 | .04 | 560 | 83 | 85 | 240 | 9.2 | 530 |
| | | 3-22 | 89 | 454 | 760 | 8.1 | 160 | - | 3.6 | .15 | 250 | 39 | 36 | 62 | 8.4 | 200 |
| | | 4-10 | 534 | 284 | 440 | 8.0 | 110 | - | 2.4 | .29 | 170 | 32 | 22 | 28 | 5.2 | 120 |
| | | 5-18 | 13 | 1310 | 1860 | 8.4 | 440 | - | 7.2 | .01 | 640 | 91 | 100 | 210 | 8.4 | 620 |
| | | 6-14 | 2.5 | 1210 | 1780 | 8.4 | 440 | - | 6.9 | .02 | 540 | 64 | 93 | 230 | 8.6 | 530 |
| Beaver Creek near Wibaux, Mt. | #5 | 2-27 | 3.7 | 1920 | 2720 | 7.9 | 360 | - | 8.2 | .44 | 700 | 130 | 92 | 350 | 9.3 | 1100 |
| | | 3-29 | 99 | 674 | 1025 | 7.6 | 130 | - | 3.2 | 1.6 | 290 | 55 | 37 | 100 | 11 | 380 |
| | | 4-10 | 653 | 539 | 895 | 7.9 | 120 | - | 3.0 | .44 | 260 | 50 | 32 | 75 | 8 | 290 |
| | | 5-17 | 23 | 1710 | 2320 | 8.3 | 380 | - | 7.6 | .03 | 680 | 120 | 93 | 310 | 8.8 | 930 |
| | | 6-14 | 7.9 | 1860 | 2500 | 8.1 | 260 | - | 8.2 | .01 | 620 | 110 | 83 | 380 | 9.8 | 1100 |
| Redwater River near Circle, Mt. | #6 | 2-20 | .6 | 4040 | 5700 | 7.7 | 490 | - | 17 | .14 | 1200 | 140 | 210 | 850 | 12 | 2500 |
| | | 3-19 | 143 | 488 | 820 | 8.0 | 110 | - | 3.2 | .53 | 230 | 40 | 32 | 70 | 8.6 | 260 |
| | | 4-11 | 489 | 841 | 1290 | 8.2 | 160 | - | 3.8 | .62 | 420 | 62 | 64 | 120 | 7.7 | 480 |
| | | 5-9 | 50 | 3040 | 4000 | 8.4 | 430 | - | 10 | .32 | 1200 | 69 | 240 | 550 | 11 | 1900 |
| | | 6-5 | 13 | 3440 | 4500 | 8.3 | 480 | - | 17 | .04 | 1300 | 150 | 220 | 550 | 10 | 2200 |
| Horse Creek | #7 | 11-14 | .99 | 6060 | 7200 | 8.3 | 810 | - | 24 | .01 | 1600 | 110 | 320 | 1400 | 14 | 3700 |
| | | 3-19 | 20 | 1060 | 1670 | 7.8 | 200 | - | 3.4 | .51 | 340 | 41 | 57 | 230 | 9.3 | 590 |
| | | 4-11 | 126 | 473 | 749 | 8.0 | 110 | - | 2.4 | .21 | 210 | 32 | 32 | 76 | 6.5 | 250 |
| | | 5-9 | 15 | 2540 | 3480 | 8.3 | 380 | - | 5.0 | .01 | 860 | 81 | 160 | 450 | 11 | 1600 |
| | | 6-5 | 2.8 | 4040 | 6150 | 8.5 | 690 | - | 6.4 | 18 | 1100 | 87 | 220 | 900 | 10 | 2400 |
| Crow Rock Creek near Cohagen, Mt. | #8 | 3-22 | 97 | 262 | 397 | 7.8 | 86 | 110 | 2.7 | .27 | 110 | 27 | 9.6 | 42 | 9 | 110 |
| | | 4-4 | 6.7 | 797 | 1160 | 8.1 | 180 | 220 | 4.0 | .11 | 250 | 47 | 31 | 160 | 9.5 | 430 |
| | | 5-31 | .22 | 3340 | 4650 | 8.6 | 480 | 490 | 19 | .01 | 810 | 110 | 130 | 800 | 14 | 2000 |
| | | 6-13 | .01 | 3600 | 4430 | 8.6 | 460 | 520 | 10 | .01 | 760 | 89 | 130 | 880 | 15 | 2200 |

|  | Station | Sampling Date | Discharge cfs | Total Dissolved Solids | Conductivity unhos field | pH Field | Total Akalinity as CaCo, mg/l | Bicarbonate as $HCO_3$ mg/l | Chloride Dissolved as CL mg/l | Nitrate + Nitrate as N mg/l | Total Hardness as $CACO_3$ mg/l | Calcium Dissolved as CA mg/l | Magnesium Dissolved as MG mg/l | Sodium Dissolved as NA mg/l | Potassium Dissolved as K mg/l | Sulfate Dissolved as $SO_4$ mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Timber Creek near Van Norman, Mt | #9 | 3-21 | 47 | 1180 | 1770 | 8.2 | 230 | - | 5.7 | .13 | 25 | 33 | 40 | 300 | 8.2 | 650 |
|  |  | 4-17 | 128 | - | 2080 | 8.3 | 210 | - | - | .11 | 42 | 58 | 67 | 290 | 6.5 | - |
|  |  | 5-08 | 27 | 3210 | 4220 | 8.5 | 440 | - | 9.1 | .01 | 75 | 84 | 130 | 800 | 13 | 1900 |
|  |  | 6-04 | 3 | 5140 | 6500 | 8.5 | 770 | - | 1.3 | - | 94 | 81 | 180 | 1400 | 12 | 3000 |
| Prairie Elk Cr. near Oswego, Mt. | #10 | 3-30 | 55 | 349 | 590 | 8.2 | 150 | - | 7.2 | .31 | 11 | 27 | 9.3 | 82 | 6.5 | 120 |
|  |  | 4-10 | 794 | 180 | 320 | 8.0 | 78 | - | 2.3 | .22 | 5 | 14 | 5.0 | 41 | 4.4 | 60 |
|  |  | 5-14 | 8 | 2110 | 3000 | 8.6 | 460 | - | 16 | .02 | 42 | 70 | 60 | 570 | 7.7 | 1100 |
|  |  | 6-6 | 3.6 | 1610 | 2460 | 8.7 | 630 | - | 7.8 | .18 | 18 | 29 | 27 | 500 | 6.1 | 650 |
| Nelson Creek near Van Norman, Mt | #11 | 12-12 | E.10 | 6960 | 9200 | 8.1 | 1160 | - | 37 | .02 | 110 | 68 | 230 | 26 | 20 | 3900 |
|  |  | 3-25 | 52 | 273 | 447 | 8.3 | 66 | - | 4.5 | .13 | 8 | 16 | 10 | 3 | 4.5 | 130 |
|  |  | 4-17 | 125 | 627 | 1080 | 8.2 | 110 | - | 2.4 | 1.0 | 19 | 31 | 27 | 3.8 | 4.3 | 370 |
|  |  | 5-3 | 3.2 | 3820 | 4820 | 8.5 | 550 | - | 11 | .02 | 89 | 77 | 170 | 13 | 9.6 | 2300 |
|  |  | 6-4 | 0.98 | 6090 | 7380 | 8.4 | 750 | - | 18 | .03 | 110 | 83 | 220 | 17 | 11 | 4000 |
| Musselshell River near Mosby, Mt. | #12 | 3-7 | 313 | 1520 | 2000 | 8.0 | 280 | - | 15 | .47 | 76 | 160 | 88 | 200 | 5.0 | 870 |
|  |  | 3-12 | 1700 | 456 | 700 | 8.2 | 69 | - | 7.1 | .38 | 19 | 40 | 22 | 74 | 6.4 | 260 |
|  |  | 4-5 | 1340 | 1710 | 2260 | 8.3 | 270 | - | 20 | .31 | 75 | 150 | 92 | 270 | 5.8 | 1000 |
|  |  | 5-10 | 1900 | 1180 | 1725 | 8.4 | 250 | - | 16 | .07 | 38 | 130 | 14 | 190 | 4.5 | 670 |
|  |  | 6-13 | 454 | 1170 | 1610 | 8.4 | 220 | - | 12 | .02 | 54 | 110 | 65 | 180 | 4.6 | 660 |
| Clear Creek near Hoyt, Mt. | #13 | 2-22 | E.04 | 1100 | 1560 | 7.5 | 220 | 270 | 8.4 | .05 | 63 | 97 | 95 | 130 | 5.6 | 630 |
|  |  | 3-18 | 26 | 503 | 720 | 8.0 | 170 | 203 | 4.2 | .33 | 30 | 49 | 43 | 50 | 7.8 | 240 |
|  |  | 4-8 | 14 | 1210 | 1670 | 8.0 | 310 | 375 | 8.8 | .12 | 77 | 110 | 120 | 120 | 8.1 | 640 |
|  |  | 5-11 | 11 | 1570 | 2050 | 8.3 | 360 | 434 | 9.9 | .00 | 100 | 140 | 160 | 140 | 6.9 | 890 |
|  |  | 6-22 | 1.2 | 1200 | 1630 | 8.3 | 340 | 410 | 7.7 | .04 | 70 | 100 | 110 | 130 | 6.6 | 630 |
| Deer Creek near Glendive, Mt | #14 | 3-14 | 24 | 482 | 730 | 8.1 | 130 | 160 | 5.7 | .42 | 16 | 33 | 19 | 100 | 8.5 | 230 |
|  |  | 4-3 | 33 | 1260 | 1800 | 8.1 | 300 | 370 | 10 | .31 | 49 | 80 | 70 | 240 | 7.8 | 660 |
|  |  | 5-10 | 17 | 2130 | 2700 | 8.5 | 440 | 500 | 14 | .00 | 73 | 110 | 110 | 430 | 6.4 | 1200 |
|  |  | 6-21 | .48 | 1970 | 2620 | 8.4 | 390 | 460 | 16 | .05 | 56 | 110 | 70 | 420 | 9.1 | 1100 |
|  |  | 8-8 | .04 | 2210 | 2720 | 8.5 | 550 | 660 | 18 | .02 | 59 | 78 | 95 | 470 | 11 | 1200 |
| Cottonwood Creek near Intake, Mt. | #15 | 12-1 | E.10 | 3790 | 4400 | 7.7 | 680 | - | 15 | .02 | 120 | 170 | 180 | 800 | 17 | 2200 |
|  |  | 3-23 | 27 | 714 | 1080 | 7.9 | 150 | - | 3.3 | .24 | 30 | 49 | 42 | 120 | 11 | 390 |
|  |  | 4-12 | 21 | 1030 | 1530 | 8.1 | 210 | - | 3.4 | .07 | 42 | 56 | 67 | 180 | 6.7 | 580 |
|  |  | 5-17 | .96 | 3580 | 4450 | 8.3 | 580 | - | 3.3 | .02 | 130 | 170 | 220 | 720 | 11 | 2100 |
|  |  | 6-14 | .09 | 4300 | 5180 | 8.4 | 520 | - | 8.5 | .00 | 130 | 120 | 240 | 910 | 12 | 2700 |
| Little Beaver Creek near Wibaux, Mt. | #16 | 11-7 | .14 | 2720 | 1350 | 8.0 | 570 | - | 15 | - | 85 | 110 | 140 | 590 | 16 | 1500 |
|  |  | 3-17 | 58 | 930 | 1375 | 8.2 | 160 | - | 8.1 | - | 45 | 65 | 70 | 120 | 10 | 550 |
|  |  | 3-25 | 15 | 1560 | 1550 | 7.9 | 270 | - | 9.8 | - | 75 | 120 | 110 | 230 | 11 | 910 |
|  |  | 6-21 | .14 | 2630 | 3250 | 8.3 | 460 | - | 16 | - | 92 | 120 | 150 | 550 | 11 | 1500 |

| Station | Sampling Date | Discharge cfs | Total Dissolved Solids | Conductivity unhos field | pH Field | Total Akalinity as CaCo, mg/l | Bicarbonate as $HCO_3$ mg/l | Chloride Dissolved as CL mg/l | Nitrate + Nitrate as N mg/l | Total Hardness as $CACO_3$ mg/l | Calcium Dissolved as CA mg/l | Magnesium Dissolved as MG mg/l | Sodium Dissolved as NA mg/l | Potassium Dissolved as K mg/i | Sulfate Dissolved as $SO_4$ mg/l |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Yellowstone River near Sidney, Mt. #17 | 2-15 | 6890 | 581 | 960 | 8.0 | 180 | - | 18 | .53 | 300 | 71 | 29 | 76 | 4.0 | 260 |
| | 4-29 | 13600 | 740 | 1130 | 8.3 | 190 | - | 15 | - | 330 | 67 | 39 | 120 | 5.0 | 370 |
| | 5-16 | 11500 | 632 | 998 | 8.5 | 160 | - | 18 | - | 300 | 71 | 30 | 95 | 4.0 | 310 |
| | 6-13 | 19400 | 280 | 455 | 8.1 | 90 | - | 6.8 | .16 | 150 | 35 | 14 | 37 | 2.5 | 120 |
| | 7-31 | 10600 | 428 | 685 | 8.5 | 130 | - | 10 | .12 | 200 | 44 | 21 | 61 | 4.2 | 200 |
| Missouri River near Culbertson, Mt #18 | 2-14 | 13300 | 499 | 810 | 8.3 | 150 | - | 9.4 | .09 | 260 | 58 | 27 | 72 | 4.5 | 230 |
| | 4-19 | 48880 | 373 | 603 | 8.1 | 110 | - | 5.7 | .26 | 170 | 39 | 18 | 60 | 4.9 | 170 |
| | 5-15 | 22500 | 578 | 910 | 8.1 | 150 | - | 9.8 | .20 | 250 | 59 | 26 | 91 | 5.4 | 290 |
| | 6-19 | 13700 | 579 | 864 | 8.2 | 150 | - | 9.4 | .18 | 280 | 66 | 29 | 84 | 4.6 | 290 |
| Powder River near Locate, Mt. #19 | 2-8 | 120 | 1940 | 2800 | 7.8 | 370 | - | 210 | .38 | 760 | 180 | 76 | 360 | 8.1 | 870 |
| | 4-24 | 835 | 2130 | 2950 | 8.2 | 230 | - | 110 | .41 | 760 | 170 | 82 | 410 | 8.0 | 1200 |
| | 5-22 | 632 | 2110 | 2880 | 8.2 | 220 | - | 110 | .54 | 710 | 160 | 75 | 400 | 21 | 1200 |
| | 6-26 | 514 | 1310 | 1890 | 8.1 | 160 | - | 72 | .35 | 580 | 140 | 57 | 210 | 7.3 | 720 |

Source: USGS Water Resources Data For Montana, Water Year 1979

# APPENDIX 3.6: BIG DRY EIS AREA RESERVOIR SEDIMENT SURVEY

| Reservoir Name | Location Twp-Rng.-Sec | Date Constructed MO/YR | Age in Years | Designed Water Storage Capacity (ac-ft) | Existing Sediment Volume in Reservoir | Existing Water Storage Capacity (ac-ft) | % Sediment Trapped | Date Surveyed MO/DAY/YR | Soil Subgroup | Hydrologic Geomorphic Area | Reservior Sediment Yield (ac-ft/$mi^2$/yr) | Average Annual Water Yield ac-ft/$mi^2$/yr) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Barley | 8N 43E 10 | 4/47 | 33 | 7.74 | 4.09 | 3.65 | 98 | 07/22/80 | 12 | I | 0.69 | 5.91 |
| Brackett | 16N 39E 3 | /39 | 41 | 8.63 | 2.55 | 6.08 | 98 | 06/15/80 | 12 | I | 0.24 | 8.20 |
| Bradac | 6N 60E 12 | 9/58 | 22 | 1.20 | 0.95 | 0.25 | 64 | 09/12/80 | 14 | IV | 0.21 | 10.54 |
| Chickie | 15N 46E 12 | 9/36 | 44 | 8.92 | 1.44 | 7.48 | 72 | 08/19/80 | 12 | I | 0.07 | 15.73 |
| Cornwell | 6N 39E 2 | 3/47 | 33 | 4.70 | 1.37 | 3.33 | 98 | 06/26/80 | 14 | IV | 0.26 | 9.96 |
| Don's | 12N 37E 30 | 7/53 | 27 | 16.10 | 7.30 | 8.80 | 98 | 07/11/80 | 12 | I | 1.18 | 11.90 |
| Gray | 9N 54E 20 | /52 | 28 | 5.61 | 2.28 | 3.33 | 97 | 08/22/80 | 13 | III | 0.31 | 13.24 |
| Haughian | 11N 49E 2 | /53 | 27 | 8.50 | 4.92 | 3.58 | 98 | 08/07/80 | 11 | III | 2.02 | 4.40 |
| Keltner | 13N 49E 2 | /36 | 44 | 2.48 | 1.86 | 0.62 | 98 | 07/31/80 | 12 | I | 0.25 | 5.53 |
| Lark | 14N 55E 15 | /68 | 13 | 2.86 | 0.57 | 2.29 | 93 | 06/25/81 | 15 | IV | 0.15 | 18.58 |
| Lockie | 7N 44E 4 | 7/44 | 36 | 5.92 | 1.09 | 4.83 | 98 | 06/30/80 | 12 | I | 0.34 | 2.80 |
| MacKenzie | 5N 53E 30 | /51 | 29 | 2.90 | 0.44 | 2.46 | 98 | 08/21/80 | 15 | IV | 0.19 | 5.23 |
| Shaw | 14N 31E 10 | /71 | 9 | 29.05 | 3.95 | 25.10 | 98 | 06/17/80 | 14 | IV | 3.13 | 7.00 |
| Woodruff | 7N 53E 7 | /50 | 30 | 0.76 | 0.33 | 0.43 | 89 | 08/12/80 | 13 | III | .16 | 3.53 |

# APPENDIX 3.7: MANAGEMENT SYSTEMS AND TREND ON EXISTING AMPS

| RECORD | TREND | PASTURES | SYSTEM | ACRES | REMARKS |
|---|---|---|---|---|---|
| 2084 | UP | 4 | DR | 8753 | |
| 2549-2685 | STABLE | 3 | DR | 9169 | |
| 2550-2686 | | | | 3586 | Not implemented |
| 2568-2832 | UP | 4 | DR | 9908 | |
| 2727 | STABLE | 5 | DR | 6575 | |
| 2728 | STABLE | 7 | DR | 3747 | |
| 2737 | UP | 6 | DR | 10826 | |
| 2738 | STABLE | 3 | DR | 2820 | |
| 2745 | STABLE | 4 | DR | 8417 | |
| 2750 | DOWN | 5/6 | DR | 23324 | |
| 2752 | STABLE | 3 | RR | 3673 | |
| 2755 | STABLE | 8 | DR | 11787 | |
| 2762 | STABLE | 3 | DR | 4315 | |
| 2763 | STABLE | 6 | DR | 10244 | |
| 2772 | UP | 12 | DR | 17304 | |
| 2773 | STABLE | 5 | DR | 6406 | |
| 2774 | STABLE | 6 | RR | 6958 | |
| 2786 | STABLE | 2 | DR | 3640 | |
| 2792 | STABLE | 3/2 | DR | 8599 | |
| 2793 | STABLE | 2 | DR | 4465 | |
| 2803 | UP | 4 | DR | 8512 | |
| 2807 | DOWM | 2 | DR | 1520 | |
| 2824-2826 | STABLE | 2 | DR | 5840 | |
| 2828 | STABLE | 3 | DR | 3361 | |
| 2829 | UP | 13 | DR | 1971 | |
| 2831 | STABLE | 3 | DR | 4213 | |
| 2838 | UP | 3 | DR | 8837 | |
| 2861 | DOWN | 4 | DR | 5496 | |
| 2873 | UP | 3 | DR | 9502 | |
| 2946 | UP | 3 | RR | 14008 | |
| | | | TOTAL | 227776 | |

SUMMARY

| | | | PUBLIC LAND ACRES | TREND | | | |
|---|---|---|---|---|---|---|---|
| | | | | UP | STATIC | DOWN | UNCLASSIFIED |
| REST ROTATION | # | 3 | 24,639 | 14,008 | 10,631 | 0 | 0 |
| | $ | 10 | 10.8 | 56.9 | 43.1 | 0 | 0 |
| DEFERRED ROTATION | # | 26 | 199,551 | 75,613 | 93,598 | 30,340 | 0 |
| | $ | 87 | 87.6 | 37.9 | 46.9 | 15.2 | 0 |
| NOT IMPLEMENTED | # | 1 | 3,586 | 0 | 0 | 0 | 3,586 |
| | $ | 3 | 1.6 | 0 | 0 | 0 | 100 |
| TOTAL | # | 30 | 227,776 | 89,621 | 104,229 | 30,340 | 3,586 |
| | $ | 100 | 100.0 | 39.3 | 45.8 | 13.3 | 1.6 |

# APPENDIX 3.8: MONTANA DEPARTMENT OF FISH AND GAME COMPUTER MODELING OF DEER DENSITIES

STATE OF MONTANA

DEPARTMENT OF

FISH AND GAME

Box 430
Miles City, Montana 59301
January 9, 1981

Ray Brubaker, District Manager
Bureau of Land Management
Miles City, Montana 59301

SUBJECT: Computer modeling of deer densities for forage allocations on public lands

Ray

Dear Mr. Brubaker:

Since you have asked for our assistance in providing deer numbers for consideration in forage allocations on Bureau of Land Management lands, I feel that these data must be qualified if our support is to be sustained. I further request that this qualification be emphasized in formal and/or legal document.

The computer run densities are derived from various population characteristics obtained during standard surveys. Some of these surveys include partial, incomplete censuses each of which reflect the limitations inherent in any known wildlife census technique. Differences in observers, densities and types of cover, time of day, behavior of the animals being observed, etc. all limit the completeness of a wildlife census. None of the census surveys used were intended to produce a number representing actual population conditions.

Further it is understood that results from computer modeling do not represent an absolute population estimate. Numbers generated are the best estimates currently obtainable with given survey procedures and only illustrate conditions during late summer 1980. The purpose of the computer estimates is to assist and not to stand as the sole indicator to determine wildlife forage allocations.

These qualifications must be emphasized so that anyone receiving the data does not incorrectly interpret their exactness. If the qualifications preface any discussion of the data, we will support them within the limits described.

Sincerely,

Keith

Keith G. Seaburg
Regional Supervisor

KGS:dm

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STATE OF MONTANA

DEPARTMENT OF

FISH AND GAME

## ASSUMPTIONS AND RATIONALE FOR DEER POPULATION ESTIMATES IN SOUTHEASTERN MONTANA

The Montana Department of Fish, Wildlife and Parks does not prefer to make total population estimates of deer by hunting districts due to the many variable factors necessary to make such estimates. However, due to the imperative need of the Bureau of Land Management, we have attempted to do this by computer population modeling and will defend our estimates as long as the assumptions and limitations are well understood.

Mule Deer:

Estimates of total mule deer numbers and densities were estimated at late summer 1980 levels by hunting district (Table 1). The original basis for the estimate was the number observed during intensive winter aerial surveys of the entire hunting district (see 1980 P.R. report for Region 7). The counts were expanded to a late winter population estimate using the rates of observability by habitat type listed in Table 2. The rates used to obtain the population estimates are from personal communication with Dr. Richard J. Mackie and David Pac, deer research biologists who have worked with this problem. The high and low estimates are based on the range of observability rates of those found by Mackie and Pac.

These populations were then modeled from the winter survey date to late summer 1980, which varied from 1-3 years. For this modeling, we had to input data about age and sex composition, fawn production, hunter kill and natural mortality. Winter age and sex structure was assumed to be 20% adult bucks, 13.3% coming yearling bucks, 52.6% adult does and 14% coming yearling does, based on field observations and age structure of the harvest. Fawn production was obtained from annual September - October production surveys. Hunter kill was from the Department's harvest survey and corrected for a 20% crippling loss, based on Department studies. Natural mortality rates were based on prior computer modeling work on prairie mule deer populations. Summer mortality was assumed to be 2% for older age classes; it was not necessary to calculate summer fawn mortality since fawn:doe ratios were obtained in September-October. Winter mortality varied with winter severity and was assumed to be that presented in Table 3.

White-tailed Deer:

The whitetail population estimates (Table 4) were not derived from computer models due to the lack of sufficient data. The basis for the estimate was the winter survey results, using the same observability rates as for mule deer (Table 2). The final estimate was computed by adding fawn production, using the September-October 1980 fawn:doe ratios and assuming that does comprised 67% of the yearling plus adult population.

Table 1. Estimates of total mule deer numbers in late summer 1980.

| Hunting District | Low Estimate | | High Estimate | | Hunt. Unit (Sq. Mi) |
|---|---|---|---|---|---|
| | Total Number | Deer/mi$^2$ | Total Number | Deer/mi$^2$ | |
| 700 | 11.064 | 4.2 | 12,064 | 4.6 | 2,634 |
| 710 | 3,779 | 2.6 | 4,483 | 3.1 | 1,452 |
| 711 | 6,325 | 7.4 | 7.874 | 9.2 | 854 |
| 712 | 5,669 | 4.2 | 7,225 | 5.4 | 1,346 |
| 713 | 4,042 | 4.9 | 5,215 | 6.3 | 830 |
| 714 | 659 | 1.9 | 1,009 | 3.0 | 341 |
| 730 | 6,740 | 3.1 | 7,943 | 3.7 | 2,155 |
| 731 | 8,916 | 4.8 | 11,535 | 6.3 | 1,836 |
| 732 | 6,323 | 5.2 | 7,544 | 6.2 | 1,224 |
| 733 | 2,014 | 0.8 | 2,531 | 1.0 | 2,450 |
| 750 | 3,552 | 3.8 | 4,094 | 4.4 | 929 |
| 760 | 7,815 | 9.7 | 10,089 | 12.6 | 803 |
| 761 | 16,826 | 8.7 | 20,117 | 10.4 | 1,929 |
| 770 | 8,026 | 7.7 | 9,529 | 9.1 | 1,043 |
| 782 | 2,634 | 4.4 | 3.152 | 5.6 | 599 |
| | 94,383 | | 114,404 | | |

Table 2. Observability rates by habitat type for winter deer surveys.

| Habitat type | Low Estimate | | High Estimate | |
|---|---|---|---|---|
| | Percent Observed | Observability Rate | Percent Observed | Observatility Rate |
| Thick pine | 30 | 3.33 | 30 | 3.33 |
| Scattered pine and juniper | 40 | 2.50 | 35 | 2.86 |
| Nontimbered rough breaks | 45 | 2.22 | 35 | 2.86 |
| Creek riparian | 50 | 2.0 | 40 | 2.50 |
| River riparian | 50 | 2.0 | 30 | 3.33 |
| Grassland and dryland agriculture | 60 | 1.67 | 50 | 2.0 |

Table 3. Mortality rates for winter

| Year | Fawns | Yearling Males | Yearling Females | Adult Males | Adult Females |
|---|---|---|---|---|---|
| 1977-78 | 35% | 8% | 10% | 8% | 18% |
| 1978-79 | 40% | 8% | 10% | 8% | 18% |
| 1979-80 | 20% | 4% | 4% | 4% | 8% |

Table 4. Estimates of total white-tailed deer numbers in late summer 1980.

| Hunting District[c] | Low Estimate | | High Estimate | |
|---|---|---|---|---|
| | Total Number | Deer/Mi.$^2$ | Total Number | Deer/mi.$^2$ |
| 700 | 533[a] | 0.2 | 813[a] | 0.3 |
| 710 | 240 | 0.2 | 279 | 0.3 |
| 711 | 74 | 0.1 | 110 | 0.1 |
| 712 | 188 | 0.1 | 243 | 0.2 |
| 713 | -[b] | | -[b] | |
| 714 | 3,199 | 9.4 | 5,326 | 15.6 |
| 730 | 1,016 | 0.5 | 1,514 | 0.7 |
| 731 | 5,800 | 3.2 | 7,250 | 3.9 |
| 732 | 6,041 | 4.9 | 7,488 | 6.1 |
| 733 | 6,597 | 2.7 | 9,384 | 3.8 |
| 750 | 6,022 | 6.5 | 9,776 | 10.5 |
| 760 | 781 | 1.0 | 812 | 1.0 |
| 761 | 4,002 | 2.1 | 5,930 | 3.1 |
| 770 | 1,015 | 1.0 | 1,269 | 1.2 |
| 782 | 347 | 0.6 | 467 | 0.8 |
| Total | 35,882 | | 50,876 | |

[a] Exluding the east bank of the Musselshell River.

[b] No whitetails observed during the winter flight.

[c] See Table 1 for Hunting District Size.

Conclusions:

The deer population estimates by hunting district presented in Table 1 and 4 are for the late summer 1980 period only. This period was chosen because the estimates best reflect the deer populations during the summer grazing period. Mackie (pers. communication) indicated that the higher population estimates were probably closer to the true population size, especially for white-tailed deer. We concur with this. We will defend these estimates, but only for late summer 1980 because the mule deer populations are increasing and the white-tailed deer populations are fluctuating, showing rapid increases and sporadic die-offs due to winter and epizootic mortalities. With additional data these estimates could be updated and refined.

January 9, 1980

Bernie Hildebrand, Fish and Wildlife Biologist II
Stephen J. Knapp, Fish and Wildlife Biologist III
Jon E. Swenson, Fish and Wildlife Biologist III

# APPENDIX 3.9: MAXIMUM ANTELOPE OCCURRENCE WITHIN THE EIS AREA BY HUNTING DISTRICT

| Hunting District | Survey Year | Number of Antelope | Hunting District Size (sq. mi.) | Area of H.D. Used by Antelope (sq. mi.) | Antelope Per Sq. Mi. |
|---|---|---|---|---|---|
| 700 | 1974 | 3,872 | 2,632 | 1,538 | 2.5 |
| 710 | 1975 | 1,804 | 699 | 483 | 3.7 |
| 711 | 1975 | 2,994 | 854 | 687 | 4.4 |
| 712 | 1975 | 592 | 943 | 565 | 1.0 |
| 713 | 1975 | 1,406 | 946 | 511 | 2.8 |
| 714 | 1973 | 1,353 | 953 | 543 | 2.5 |
| 730 | 1974 | 3,393 | 1,438 | 1,359 | 2.5 |
| 731 | 1975 | 1,251 | 1,056 | 950 | 1.3 |
| 732 | 1975 | 942 | 1,242 | 902 | 1.0 |
| 733 | 1974 | 1,569 | 2,433 | 2,050 | 0.8 |
| 750 | 1973 | 287 | 929 | 470 | 0.6 |
| 760 | 1975 | 567 | 816 | 522 | 1.1 |
| 761 | 1975 | 1,911 | 1,922 | 1,282 | 1.5 |
| 770 | 1975 | 1,825 | 1,055 | 778 | 2.3 |
| 780 | 1975 | 1,462 | 947 | 721 | 2.0 |

SOURCE: Montana Department of Fish, Wildlife and Parks, Region 7, Pittman-Robertson (P.R.) Reports (largely from PR W-130-R-11, Table 4)

# APPENDIX 3.10: METHODOLOGY FOR ASSESSING RANCH RELATED ECONOMIC IMPACTS

The first step in the process involved matching each allotment in the EIS study area with the respective ranch operation. Some ranch operations have only one public grazing allotment, others have a number of allotments involving existing allotment management plans (AMPs) or proposed AMPs and non-AMPs.

There is a total of 708 individual ranch operations with public grazing privileges in the study area. One hundred of these 708 ranches have 25 or fewer public AUMs. The public AUMs are virtually unimportant to these ranches, so the analysis concentrates on the 608 remaining ranch operations.

Through the use of BLM grazing records, personal knowledge of Miles City District BLM employees and Agricultural Stabilization and Conservation Service (ASCS) crop records, the 608 ranches were placed in 12 size-and-type categories (Table 3-11). The predominate type of ranch is a cow/calf operation. Also, as indicated on Table 3-11, many of the operations also produce cash crops, primarily wheat.

To determine dependency of ranches on public grazing, the total AUM grazing requirement for the ranches was computed. This was accomplished by multiplying 7.5 times the total estimated number of animal units (AUs) in each ranch. Seven and one-half was used because it is estimated that, on the average, ranch operations in the EIS study area graze seven and one-half months and feed hay and supplement the other four and one-half months. To determine the percentage of dependency of each operation on public grazing, the number of public AUMs permitted was divided by the total ranch AUM requirements. Table 3-10 summarizes these determinations: Percentage dependency = public AUMs divided by (7.5 months x number of ranch AUs).

The number of livestock on ranches within each size category was averaged. Results of the averaging indicated the following: 0-150 cows, average 100 cows; 151-374 cows, average 250 cows; 375-749 cows, average 500 cows and 750 plus cows, average 1500 cows.

Ranch budgets were constructed for each of the four average size ranches. A representative crop enterprise budget was developed for those farms/ranches having cash crops. The crop budgets are for producing hard red winter wheat following fallow.

The Economics and Research Service (USDA, ERS) developed the representative budgets, using, in part, budget data gathered in a national cost of production study in 1979. This data was supplemented by location information gathered by BLM regarding such production items as calf crops, calf weaning weights, forage requirements, etc. (Cornelius, 1977). The BLM gathered this type of data to arrive at, for example, the average weaning weights for heifers and steers in the study area. Appendices 3.10A through 3.10E summarize the representative livestock and crop budgets.

A linear programming model was developed by ERS for each of four livestock sizes. The linear programming model maximizes ranch income based on a series of production parameters and constraints. To determine the economic impacts on the ranch, the level of public grazing was varied (increased, decreased or eliminated) according to the proposed change in public AUMs under each alternative. For example, under the no grazing alternative, 100 percent of the public AUMs are eliminated from the representative ranch.

It is very difficult to project how ranchers would adjust their operations given a change in public AUMs. Each ranch operation is unique, and the adjustment by each rancher to a change in public AUMs would probably vary somewhat. It was assumed that the most likely response of ranchers to decreases in public AUMs would be to reduce the size of the ranch operation. Small ranches would probably be less likely to reduce the size of their operations and would probably purchase hay, for example, to compensate for the loss of public grazing. If BLM increased the number of AUMs, ranchers would not necessarily increase the size of their cow/calf operations. They might, run more yearlings, for example, or they might reallocate grazing in spring and fall to public pastures, so that less winter feed must be purchased.

The impact on ranch income is measured only in terms of change in the number of BLM AUMs. There may be changes in ranch returns that do not directly relate to the change in quantity of AUMs. Not enough data are available at this time in the study area to conclusively quantify the extent of these additional ranch returns due to AUM quality, so they were not evaluated in the analysis.

Implementation of grazing systems would increase the cost to ranch operations in such areas as increased fence maintenance, more movement of livestock and increased effort in monitoring forage conditions. These costs are included in the budget models.

Using the linear programming model, then, the change in ranch income (gross receipts about cash costs and depreciation), was calculated given a change in public AUMs. Private and state lands are intermingled with public lands, so a reduction in public grazing can cause a reduction in private and state grazing. However, in the calculations, grazing on state and private lands are not reduced.

It is interesting to note the decreases in income per AUM under various decreases in public and associated state and private AUMs. For example, with a 50 percent decrease in public AUMs, income (gross receipts above cash cost and depreciation) on a 100 cow ranch would decrease $9.38 per AUM. The loss in forage value to the nation amounts to $11.74 per AUM ($9.38 + $2.36 (1980 grazing fee) = $11.74). A 15 percent increase in public AUMs for the same size ranch would increase ranch income $3.77 per AUM. The increase to the nation in forage value would be $7.53 ($5.17 + $2.36 = $7.53). The decrease per AUM is greater than the increase largely because of cost structure. Ranches have a certain amount of fixed costs that are not reduced proportionally with reduced AUMs. They must continue to pay these fixed costs at least in the short term.

In the ranch budgets developed by ERS, different responses for income maximization were necessary depending on whether there were decreases or increases in public AUMs. With income maximization, a decrease in public AUMs results in a decrease in herd size. However, an increase in public AUMs results in no increase in herd size. However, costs do decrease, so income increases.

Also of interest is a comparison of this forage value for an AUM with the fair market value as determined by the ERS. In Montana the average monthly rate per head for pasturing cattle on private land in 1980 was $9.40 (USDA, ESS, 1980, Farm Real Estate Market Developments). This is very close to the value arrived at through linear programming and it tends to support the data and approach used in the analysis.

It is estimated that an average value for BLM grazing permits in the study area is approximately $100 per AUM. For those ranchers who have purchased BLM permits at $100 per AUM or $1,200 per AU, it is possible to calculate the price they are paying for public AUMs. Using an opportunity cost of capital of 9.3 percent, the cost of owning the BLM permit is $9.30 per AUM. Adding the grazing fee of $2.36 results in a total price per AUM of $11.66.

As mentioned above, the assumption is made that ranchers would vary herd size in response to changes in BLM grazing. These changes in herd size would affect the number of ranch employees needed. Changes in ranch workers were calculated using the following assumptions: one employee is needed for each 250 cows above the initial 250, and the number of employees would vary directly according to herd size changes. Thus if an operation increased its cow herd from 500 to 750 it would be assumed that 1 equivalent to full time worker would be needed in addition to the 1 already employed.

The economic analysis uses average livestock prices for 1977, 1978 and 1979. Cost figures are for 1979. Historically, livestock prices have changed dramatically every three to five years, whereas production costs have risen consistently. A point could be raised as to the validity of using these figures to project economic impacts into the future. It has been assumed in this analysis that the cost/price relationship would remain fairly constant over the long term, with upward pressure on both costs and prices due to economy-wide inflation. Therefore, although the magnitude of the figures will increase the relative impact would remain constant.

## APPENDIX 3.10A: COSTS AND RETURNS FOR BEEF HERDS OF 0-150 COWS

| Item | Unit | Quantity | Average Weight | Price Cwt | Total Value |
|---|---|---|---|---|---|
| Sales: | | | | | |
| Steer calves | Head | 39 | 430 | 82.00 | 13,751 |
| Heifer calves | Head | 22 | 390 | 73.90 | 6,341 |
| Yearling steers | Head | 4 | 700 | 71.34 | 1,998 |
| Yearling heifers | Head | 8 | 650 | 67.43 | 3,506 |
| Cull cows | Head | 12 | 1,000 | 42.73 | 5,128 |
| Total | | | | | 30,724 |
| Total/cow | | | | | 307.24 |
| | | | | Total Value | Value/ Cow |
| Cash Costs: | | | | | |
| BLM grazing fee | | | | 351 | 3.51 |
| Forest grazing fee | | | | - | - |
| Private range lease/rent | | | | 461 | 4.61 |
| State lease | | | | 246 | 2.46 |
| Hay (product) | | | | 3,611 | 36.11 |
| Hay (purchase) | | | | 1,089 | 10.89 |
| Protein supplement | | | | 707 | 7.07 |
| Irrigated pasture | | | | - | - |
| Salt and mineral | | | | 152 | 1.52 |
| Concentrate feeds | | | | 226 | 2.26 |
| Veterinary and medicine | | | | 351 | 3.51 |
| Hired trucking | | | | 149 | 1.49 |
| Marketing | | | | 277 | 2.77 |
| Fuel and lubricants | | | | 1,619 | 16.19 |
| Repairs | | | | 1,151 | 11.51 |
| Real estate taxes | | | | 2,600 | 26.00 |
| Other taxes | | | | 145 | 1.45 |
| Insurance | | | | 661 | 6.61 |
| Interest on operating capital | | | | 929 | 9.29 |
| General farm overhead | | | | 226 | 2.26 |
| Interest on long term debt | | | | 5,200 | 52.00 |
| Hired labor | | | | 781 | 7.81 |
| Total cash costs | | | | 20,932 | 209.32 |
| Other Costs: | | | | | |
| Family labor | | | | 3,550 | 35.50 |
| Depreciation | | | | 2,990 | 29.90 |
| Interest on investment, other than land | | | | 10,463 | 104.63 |
| Interest on land investment | | | | 45,729 | 457.29 |
| Total other costs | | | | 62,732 | 627.32 |
| Total all costs | | | | 83,664 | 836.64 |
| Return above cash costs | | | | 9,792 | 97.92 |
| Return above cash costs & family labor | | | | 6,242 | 62.42 |
| Return to total investment | | | | 3,252 | 32.52 |
| Return to land | | | | -7,211 | -72.11 |

Herd size 150 cows; 92% calf crop; 5% calf loss; 3% annual cow loss; 2% yearling loss; 20% replacement rate; and 25 cows per bull.

## APPENDIX 3.10B: COSTS AND RETURNS FOR BEEF HERDS OF 151-374 COWS

| Item | Unit | Quantity | Average Weight | Price Cwt | Total Value |
|---|---|---|---|---|---|
| Sales: | | | | | |
| Steer calves | Head | 98 | 430 | 82.00 | 34,555 |
| Heifer calves | Head | 54 | 390 | 73.90 | 15,563 |
| Yearling steers | Head | 11 | 700 | 71.34 | 5,493 |
| Yearling heifers | Head | 21 | 650 | 67.43 | 9,204 |
| Cull cows | Head | 30 | 1,000 | 42.73 | 12,819 |
| Total | | | | | 77,634 |
| Total/cow | | | | | 310.54 |
| | | | | Total Value | Value/ Cow |
| Cash Costs: | | | | | |
| BLM grazing fee | | | | 875 | 3.50 |
| Forest grazing fee | | | | - | - |
| Private range lease/rent | | | | 1,145 | 4.58 |
| State lease | | | | 612 | 2.45 |
| Hay (product) | | | | 9,019 | 36.08 |
| Hay (purchase) | | | | 2,706 | 10.82 |
| Protein supplement | | | | 1,662 | 6.65 |
| Irrigated pasture | | | | - | - |
| Salt and mineral | | | | 381 | 1.52 |
| Concentrate feeds | | | | 357 | 1.43 |
| Veterinary and medicine | | | | 1,067 | 4.27 |
| Hired trucking | | | | 545 | 2.18 |
| Marketing | | | | 108 | .43 |
| Fuel and lubricants | | | | 3,890 | 15.56 |
| Repairs | | | | 3,351 | 13.40 |
| Real estate taxes | | | | 6,342 | 25.37 |
| Other taxes | | | | 409 | 1.64 |
| Insurance | | | | 1,627 | 6.51 |
| Interest on operating capital | | | | 2,185 | 8.74 |
| General farm overhead | | | | 1,721 | 6.88 |
| Interest on long term debt | | | | 13,000 | 52.00 |
| Hired labor | | | | 3,679 | 14.72 |
| Total cash costs | | | | 54,681 | 218.73 |
| Other Costs: | | | | | |
| Family labor | | | | 4,680 | 18.72 |
| Depreciation | | | | 7,952 | 31.81 |
| Interest on investment, other than land | | | | 25,994 | 103.98 |
| Interest on land investment | | | | 111,213 | 444.85 |
| Total other costs | | | | 149,839 | 599.36 |
| Total all costs | | | | 204,520 | 818.08 |
| Return above cash costs | | | | 22,953 | 91.81 |
| Return above cash costs & family labor | | | | 18,273 | 73.09 |
| Return to total investment | | | | 10,321 | 41.28 |
| Return to land | | | | -15,673 | -62.70 |

Herd size 250 cows; 92% calf crop; 5% calf loss; 3% annual cow loss; 2% yearling loss; 20% replacement rate; and 25 cows per bull.

## APPENDIX 3.10C: COSTS AND RETURNS FOR BEEF HERDS OF 375-749 COWS

| Item | Unit | Quantity | Average Weight | Price Cwt | Total Value |
|---|---|---|---|---|---|
| Sales: | | | | | |
| Steer calves | Head | 196 | 430 | 82.00 | 69,110 |
| Heifer calves | Head | 107 | 390 | 73.90 | 30,838 |
| Yearling steers | Head | 22 | 700 | 71.34 | 10,986 |
| Yearling heifers | Head | 42 | 650 | 67.43 | 18,408 |
| Cull cows | Head | 60 | 1,000 | 42.73 | 25,638 |
| Total | | | | | 154,980 |
| Total/cow | | | | | 309.96 |
| | | | | Total Value | Value/ Cow |
| Cash Costs: | | | | | |
| BLM grazing fee | | | | 1,767 | 3.53 |
| Forest grazing fee | | | | - | - |
| Private range lease/rent | | | | 2,318 | 4.64 |
| State lease | | | | 1,240 | 2.48 |
| Hay (product) | | | | 18,170 | 36.34 |
| Hay (purchase) | | | | 5,500 | 11.00 |
| Protein supplement | | | | 2,790 | 5.58 |
| Irrigated pasture | | | | - | - |
| Salt and mineral | | | | 761 | 1.52 |
| Concentrate feeds | | | | 714 | 1.43 |
| Veterinary and medicine | | | | 1,585 | 3.17 |
| Hired trucking | | | | 1,318 | 2.64 |
| Marketing | | | | 1,773 | 3.55 |
| Fuel and lubricants | | | | 5,450 | 10.90 |
| Repairs | | | | 7,609 | 15.22 |
| Real estate taxes | | | | 10,362 | 20.72 |
| Other taxes | | | | 1,104 | 2.21 |
| Insurance | | | | 3,487 | 6.97 |
| Interest on operating capital | | | | 4,211 | 8.42 |
| General farm overhead | | | | 1,998 | 4.00 |
| Interest on long term debt | | | | 26,000 | 52.00 |
| Hired labor | | | | 3,992 | 7.98 |
| Total cash costs | | | | 102,149 | 204.30 |
| Other Costs: | | | | | |
| Family labor | | | | 9,778 | 19.56 |
| Depreciation | | | | 26,373 | 52.75 |
| Interest on investment, other than land | | | | 54,953 | 109.91 |
| Interest on land investment | | | | 176,956 | 353.91 |
| Total other costs | | | | 268,060 | 536.13 |
| Total all costs | | | | 370,209 | 740,43 |
| Return above cash costs | | | | 52,831 | 105.66 |
| Return above cash costs & family labor | | | | 43,053 | 86.10 |
| Return to total investment | | | | 16,680 | 33.35 |
| Return to land | | | | -38,273 | -76.56 |

Herd size 500 cows; 92% calf crop; 5% calf loss; 3% annual cow loss; 2% yearling loss; 20% replacement rate; and 25 cows per bull.

## APPENDIX 3.10D: COSTS AND RETURNS FOR BEEF HERDS OF OVER 750 COWS

| Item | Unit | Quantity | Average Weight | Price Cwt | Total Value |
|---|---|---|---|---|---|
| Sales: | | | | | |
| Steer calves | Head | 578 | 430 | 82.00 | 203,803 |
| Heifer calves | Head | 343 | 390 | 73.90 | 98,856 |
| Yearling steers | Head | 64 | 700 | 71.34 | 31,960 |
| Yearling heifers | Head | 30 | 650 | 67.43 | 13,149 |
| Cull cows | Head | 225 | 1,000 | 42.73 | 96,142 |
| Total | | | | | 443,910 |
| Total/cow | | | | | 295.94 |
| | | | | Total Value | Value/ Cow |
| Cash Costs: | | | | | |
| BLM grazing fee | | | | 5,220 | 3.48 |
| Forest grazing fee | | | | - | - |
| Private range lease/rent | | | | 7,380 | 4.92 |
| State lease | | | | 3,946 | 2.63 |
| Hay (produce) | | | | 42,837 | 28.56 |
| Hay (purchase) | | | | 15,760 | 10.51 |
| Protein supplement | | | | 3,720 | 2.48 |
| Irrigated pasture | | | | - | - |
| Salt and mineral | | | | 2,284 | 1.52 |
| Concentrate feeds | | | | 893 | .60 |
| Veterinary and medicine | | | | 4,755 | 3.17 |
| Hired trucking | | | | 3,765 | 2.51 |
| Marketing | | | | 5,595 | 3.73 |
| Fuel and lubricants | | | | 12,390 | 8.26 |
| Repairs | | | | 13,965 | 9.31 |
| Real estate taxes | | | | 46,129 | 30.75 |
| Insurance | | | | 9,539 | 6.36 |
| Interest on operating capital | | | | 18,200 | 12.13 |
| General farm overhead | | | | 7,350 | 4.90 |
| Other cash costs | | | | 76,500 | 21.00 |
| Hired labor | | | | 29,336 | 19.56 |
| Total cash costs | | | | 309,564 | 206.38 |
| Other Costs: | | | | | |
| Family labor | | | | 11,970 | 7.98 |
| Depreciation | | | | 37,877 | 25.25 |
| Interest on investment, other than land | | | | 126,683 | 84.45 |
| Interest on land investment | | | | 872,768 | 581.85 |
| Total other costs | | | | 1,049,298 | 699.53 |
| Total all costs | | | | 1,358,862 | 905.91 |
| Return above cash costs | | | | 134,346 | 89.56 |
| Return above cash costs & family labor | | | | 122,376 | 81.58 |
| Return to total investment | | | | 84,499 | 56.33 |
| Return to land | | | | -42,184 | -28.12 |

Herd size 1,500 cows; 92% calf crop; 5% calf loss; 3% annual cow loss; 2% yearling loss; 20% replacement rate; and 25 cows per bull.

## APPENDIX 3.10E: MONTANA—HARD RED WINTER WHEAT FOLLOWING FALLOW

| ITEM | UNIT | PRICE/UNIT | QUANTITY | VALUE/ACRE |
|---|---|---|---|---|
| Sales: | | | | |
| Wheat | | | | |
| Total Receipts | BU | 3.19 | 26.2 | 83.58 |
| | | | | 83.58 |
| Cash Costs: | | | | |
| Preharvest: | | | | |
| Insecticide | | | | |
| Herbicide | | | | .07 |
| Seed | | | | 1.00 |
| Nitrogen | | | | 3.50 |
| Phosphate | | | | 3.23 |
| Fertilizer Appl. | | | | 2.59 |
| Tractor fuel and lube | | | | .21 |
| Tractor repairs | | | | 1.78 |
| Machine fuel and lube | | | | 1.16 |
| Machine repairs | | | | .89 |
| Machine labor | | | | 2.13 |
| | | | | 3.42 |
| Harvest: | | | | |
| Custom combine and haul | | | | |
| Machine fuel and lube | | | | 2.64 |
| Machine repairs | | | | .84 |
| Machine labor | | | | 1.35 |
| Taxes | | | | 1.08 |
| Insurance | | | | 1.06 |
| Gen. farm overhead | | | | .63 |
| Interest on oper capital | | | | 5.24 |
| Total Cash Costs: | | | | 2.35 |
| | | | | 35.17 |
| Other Costs: | | | | |
| Depreciation | | | | |
| Interest on investment | | | | 12.98 |
| other than land | | | | |
| Total Other Costs: | | | | 5.62 |
| | | | | 18.60 |
| Total all costs | | | | |
| Return above cash costs | | | | 53.77 |
| Return to total investment | | | | 48.41 |
| Return to land | | | | 35.43 |
| | | | | 29.81 |

SOURCE: BLM 1981

# APPENDIX 3.11: METHODOLOGY FOR SOCIAL IMPACT ASSESSMENT

A BLM sociologist conducted a total of 61 interviews with permittees in the Big Dry Resource Area (approximately 8% of total area permittees) during July and August of 1981. All but one of the interviews were conducted on the telephone. A random sample of ranchers to be interviewed was drawn from the area range users list using a table of random numbers. The original sample drawn included 71 area ranchers, or 10% of total area permittees. However, due to time constraints and the difficulty involved in contacting some area permittees during haying season, only 61 useable interviews were obtained.

Because of OMB restrictions, the interviews resembled guided conversations rather than a structured survey. Consistency of data from one interview to the next was obtained by using a list of key topics which were covered in most interviews. Responses were later analyzed for information and attitudes regarding significant social and natural resource issues. Natural resource issues covered included existing range condition and trend, uses and nonuses of public land, and attitudes regarding the proposed action and alternatives under consideration. Social issues included values and beliefs about the local lifestyle, perceptions of the BLM, and some demographic data. Additional information regarding attitudes relevant to the EIS was obtained via written comments submitted as part of the earlier public participation process, and via a BLM survey of community leaders and ranchers conducted in July and August of 1979, which was designed to identify public issues relevant to natural resource management of public lands.

The interviews that were conducted for the social impact assessment are not assumed to be fully representative of the views of every member of the affected community. Therefore, caution must be used in interpreting this information to represent the entire range of attitudes in the EIS area, or in saying the percentage of respondents with a given belief can be generalized to a proportion of the entire population.

# APPENDIX 3.12: METHODOLOGY FOR ASSESSING REGIONAL ECONOMIC IMPACTS

Analysis of the impacts of the alternatives on intensive study area output, earnings and employment is based on the Water Resource Council Regional Industrial Multiplier System (RIMS). The system was developed by the Regional Economic Analysis Division, Bureau of Economic Analysis (BEA), U.S. Department of Commerce. A complete explanation of the methodology and procedures for RIMS is provided in *Water Resources Council Guide 5: Regional Multipliers*. Also, an example of the application of RIMS to river basin planning is available to *Regional Industrial Multiplier System—A Guide for River Basin Analysts*, USDA Forest Service.

This section briefly explains RIMS and shows how it is applied in the regional impact analysis. RIMS is essentially a technique for estimating regional output multipliers which can be used to measure the impact of EIS alternatives on output. Changes in income and employment can be estimated from this output base.

RIMS is based on an input-output (I-O) model. The I-O model is composed of three parts; a processing sector, a final demand sector and a payments sector. The processing sector is divided into industries and displayed as a matrix; each industry is represented by a column showing purchases of that industry and a row showing its sales to others. Each element in the matrix shows the sales of the producing (row) industry to the purchasing (column) industry.

To the processing sector are added several rows for the payments sector (which includes imports, payments to governments, depreciation and payments to households) and several columns for the final demand section (which includes government purchases, exports from the region and purchases of goods and services by households). It is important to remember that the final demand sector is the only autonomous sector in the economy and any change in production in the processing sector is a response to a change in demand.

The input-output table is constructed, in this case, for the BEA Economic Area - 095 - Billings, Montana. Since the BEA area represents a larger geographic area than the study area, the RIMS multipliers tend to overestimate impact.

The industry-specific multipliers are calculated by first assuming that the regional economy is similar, but not identical to the national economy. The regional I-O table is constructed by "regionalizing" the national I-O table. The results of this procedure give the following gross output multipliers and components for the BEA Economic Area - 095 (Table 1). Only the industrial sectors whose final demand will change under the various EIS alternatives are listed.

Based on these gross output multipliers, the impact on the study area output, earnings and employment for each of the alternatives can be calculated. In this analysis the ranching and construction industries are being examined. (Increases in study area earnings and employment due to increases in federal government employment are calculated directly from estimates of the number of new employees that will be needed in each alternative.) The first step in the analysis is to estimate increases/decreases in final demand. With respect to the ranching industry, this is accomplished by calculating the changes in gross livestock sales due to changes in public AUMs.

The change in final demand is multiplied by the appropriate gross output multiplier to determine the impact on gross output for the region. The gross output is then multiplied by the gross output to earnings factor to determine changes in earnings in the region. Earnings are then multiplied by the employment/earnings ratio for the region to determine the impact on employment.

TABLE 1: BEA ECONOMIC AREA—095—BILLINGS, MONTANA

| Industrial Sector | WRC Sector No. | Direct Effect Component | Indirect Effect Component | Gross Output Multiplier | Household Coefficient |
|---|---|---|---|---|---|
| Meat, Animals | 03 | .863 | .718 | 2.581 | .158 |
| Construction | 18 | .545 | .447 | 1.992 | .289 |
| Trade | 54 | .667 | .550 | 2.217 | .513 |
| Services | 56 | .682 | .563 | 2.245 | .487 |

# APPENDIX 4.1: EFFECTS OF LAND TREATMENTS

| IMPACTS ON SOILS AND WATERSHED | MECHANICAL TREATMENTS (ALT. A, B AND C) | | | | | | | | | | | | | | GRAZING SYSTEMS (ALT. A, B AND D) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Plowing & Seeding | | Ripping Chiseling 50% of Surface | | Contour Furrowing | | Chaining Cabling Railing Dozing | | Water Spreader | | Fire | | Chemical | | Rest Rotation | | Deferred Rotation | | Deferred | | Seasonal | | No Grazing | | No Action (Alt. D) | |
| | ST | LT | ST | LT | ST | LT | ST | LT | ST | LT | ST | LT | ST | LT | ST | LT | ST | LT | ST | LT | ST | LT | ST | LT | ST | LT |
| Erosion and Sedimentation | + | - | + | - | - | - | + | - | - | - | + | - | + | - | + | - | 0 | - | 0 | - | 0 | - | - | - | 0 | + |
| Vegetation Production | - | + | - | + | - | + | - | + | + | + | + | + | + | + | 0 | + | 0 | + | 0 | + | 0 | + | + | + | 0 | - |
| Nutrient Availability | + | - | - | + | + | - | + | 0 | 0 | + | + | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | + | + | 0 | - |
| Soil Moisture | + | + | + | + | + | + | + | + | + | + | + | + | + | + | 0 | + | 0 | + | 0 | + | 0 | + | + | + | 0 | - |
| Water Quality | - | + | - | + | - | + | - | + | + | + | - | + | - | + | 0 | + | 0 | + | 0 | + | 0 | + | + | + | 0 | - |
| Soil Salts | + | + | + | + | + | - | 0 | 0 | - | - | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 |
| Change in grazing pattern and intensity | + | + | + | + | + | + | + | + | + | + | + | + | - | + | 0 | + | 0 | + | 0 | + | 0 | + | - | - | 0 | 0 |
| Soil Development | - | + | 0 | + | - | + | - | + | + | + | - | + | 0 | + | 0 | + | 0 | + | 0 | + | 0 | + | + | + | 0 | - |
| Soil Surfact texture changes (amount of clay content) | + | + | 0 | + | + | + | + | + | 0 | + | 0 | + | 0 | + | 0 | + | 0 | + | 0 | + | 0 | + | 0 | - | 0 | + |

# APPENDIX 4.2: METHODOLOGY OF CALCULATING WATERSHED IMPACTS

The effects of grazing on sediment and water yields depend upon the grazing duration, intensity and season of use, as well as soil, climate, vegetation and topographic interactions. Because of the complexity of these interactions, only generalizations are possible. The figures for sediment and water yields appear as exact numbers, but are actually estimates

The figures for sediment yields were derived from data taken in a reservoir sediment survey. Fourteen reservoirs from three of the four hydrologic geomorphic areas (glossary) were surveyed in the Big Dry EIS area. Data from the fourth hydrologic geomorphic area, glaciated plains, was taken from the Prairie Potholes EIS, since data was unavailable in the Big Dry area

Sediment yield ranges were produced for each hydrologic geomorphic area. It is assumed the low end of the range represents a watershed in good to excellent condition, the middle of the range, a watershed in fair to good condition, while the high end of the range represents a watershed in poor condition

Initial or existing sediment yields were estimated using sediment yield ranges, SVIM inventory, and range condition mapping. Effects of each alternative were projected on each of the four hydrologic geomorphic areas. For instance, in the existing situation hydrologic geomorphic area I has approximately 2,400 acres in poor condition. It was projected that by applying the grazing treatments proposed in Alternative A, the sediment yield from those 2,400 acres would shift from the high end to the middle of the range. Multiplying that yield by the number of acres involved, resulted in an amount of sediment produced per year from those acres

This method was applied to each of the treatments in each alternative, resulting in the Summary of Watershed Impacts found at the end of the discussion of each alternative in chapter four.

Water yields were estimated using mean annual runoff curves from small watersheds for eastern and central Montana developed by BLM hydrologists at the Lewistown District Office. It was assumed that water yields varied directly with sediment yields. Therefore, the same methods used to predict sediment yields were also used to predict water yields

# APPENDIX 4.3: PROGRAMMATIC MEMORANDUM OF AGREEMENT

Advisory
Council On
Historic
Preservation

1522 K Street NW.
Washington D.C.
20005

PROGRAMMATIC MEMORANDUM OF AGREEMENT
BETWEEN THE
DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT,
THE ADVISORY COUNCIL ON HISTORIC PRESERVATION,
AND THE
NATIONAL CONFERENCE OF STATE HISTORIC PRESERVATION OFFICERS
REGARDING THE
LIVESTOCK GRAZING AND RANGE IMPROVEMENT PROGRAM

WHEREAS, the Department of the Interior, Bureau of Land Management, administers public lands, principally in the 11 Western States and Alaska, under concepts of multiple-use and sustained yield, and, among other responsibilities, the Bureau of Land Management is charged with management of rangeland and forage products under the Taylor Grazing Act of 1934 (43 U.S.C. 315) and the Federal Land Policy and Management Act of 1976 (43 U.S.C. 1701), which also charges the Bureau of Land Management with the management and protection of cultural resources; and

WHEREAS, Section 106 of the National Historic Preservation Act (16 U.S.C. 470f, as amended, 90 Stat. 1320) requires that the head of any Federal agency having direct or indirect jurisdiction over a proposed Federal, federally assisted, or federally licensed undertaking affecting properties in or eligible for the National Register of Historic Places shall afford the Advisory Council on Historic Preservation (hereafter Council) a reasonable opportunity for comment; and

WHEREAS, livestock grazing and range improvement activities undertaken by the Bureau of Land Management may have an effect upon properties in or eligible for the National Register of Historic Places and will require compliance with Section 106 of the National Historic Preservation Act, Section 2 of Executive Order 11593, May 13, 1971, "Protection and Enhancement of the Cultural Environment," and the Council's regulations, "Protection of Historic and Cultural Properties" (36 CFR Part 800); and

WHEREAS, the Bureau of Land Management is currently engaged in an ongoing program of rangeland management which involves the preparation, by 1988, of approximately 145 environmental statements on specific areas where grazing is permitted on approximately 174 million acres of public lands in the Western States and has requested Council review of the rangeland management program; and

WHEREAS, the Council and the Bureau of Land Management have met and reviewed the livestock grazing and range improvement program of the Bureau of Land Management and its relation to compliance with Section 106 of the National Historic Preservation Act of 1966 and Executive Order 11593, as implemented by the Council's regulations (36 CFR Part 800) and the responsibilities for historic and cultural resources under the National Environmental Policy Act of 1969 (42 U.S.C. 4321) as implemented by the Council on Environmental Quality in the "National Environmental Policy Act Regulations" (40 CFR Parts 1500-1508).

NOW, THEREFORE, it is mutually agreed that the Bureau of Land Management will ensure, through the stipulations outlined in this Programmatic Memorandum of Agreement, that historic and cultural properties will be given adequate consideration in grazing management program decisions and implementation which includes, but is not limited to, the preparation of grazing environmental statements, thereby meeting its responsibilities under Section 106 of the National Historic Preservation Act.

STIPULATIONS

1. The Bureau of Land Management will conduct Class I (existing data inventory) and Class II (sampling field inventory) inventories of historic and cultural properties, as specified in BLM Manual Section 8111, to be completed at the appropriate planning stage and prior to the preparation of the draft environmental statement. Inventory results will be evaluated, in consultation with the appropriate State Historic Preservation Officer, to identify properties included in or eligible for inclusion in the National Register of Historic Places.

   a. The inventory requirement may be modified on a case by case basis for interim grazing environmental statements (i.e., those prepared during fiscal years 1979 through 1981) if an alternative is acceptable to the appropriate State Historic Preservation Officer.

b. If an acceptable alternative cannot be negotiated with the appropriate State Historic Preservation Officer, then the Bureau of Land Management will proceed with the preparation of the environmental statement and request the comments of the Council in accordance with 36 CFR 800. The Council's comments will be included in the final environmental statement.

2. This Programmatic Memorandum of Agreement and the inventory reports identifying historic and cultural properties will be referenced in each environmental statement.

3. Prior to commencement of any range improvement activities which involve land disturbance, the Bureau of Land Management will conduct a Class III inventory, as specified in the BLM Manual Section 8111.4, supplementing previous surveys to locate, identify, and evaluate properties in the impact area that may be eligible for inclusion in the National Register of Historic Places. Range improvement activities which involve land disturbance include, but are not limited to, such activities as construction of fencing and corrals, water development, chaining, and controlled burning. If properties that may be eligible for the National Register are found, the Bureau of Land Management will consult with the appropriate State Historic Preservation Officer and forward the documentation to the Keeper of the National Register to obtain a determination of eligibility in accordance with 36 CFR Part 63.

4. The Bureau of Land Management will provide the appropriate State Historic Preservation Officer with copies of the reports of the Class I, II, and III inventories in accordance with Sections 102(a)(2) and 202(c)(9) of the Federal Land Policy and Management Act of 1976 for inclusion as part of the State inventory conducted pursuant to 36 CFR Part 61.

5. The Bureau of Land Management will design the livestock grazing and range improvement program to avoid adverse effects on properties included in or eligible for inclusion in the National Register of Historic Places, unless this is not prudent or feasible.

6. Where it is not prudent or feasible to avoid adverse effects on properties included in or eligible for inclusion in the National Register of Historic Places as part of a livestock grazing and range improvement program authorization and the property is not a National Historic Landmark or National Historic Site, the Bureau of Land Management will consult with the appropriate State Historic Preservation Officer and will:

   a. Develop mutually acceptable measures to mitigate the impact of the proposed action; and

   b. Notify the Council in writing of agreements reached with the State Historic Preservation Officer under the provisions of 6(a) above. The Council need not be afforded further opportunity for review and comment.

7. The provisions of this Programmatic Memorandum of Agreement shall apply to the States of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

8. If it is determined that the affected property is a National Historic Landmark or National Historic Site, or agreement cannot be reached between the Bureau of Land Management and the appropriate State Historic Preservation Officer on satisfactory mitigation measures, the Bureau of Land Management will request the comments of the Council in accordance with 36 CFR Part 800.

9. At the request of the President or a Member of Congress, the Council may advise the Bureau of Land Management, that a particular action, authorized by a grazing permit or lease, will require individual review and comment pursuant to 36 CFR Part 800. In that event, the Bureau of Land Management will comply with the provisions of the Council's regulations.

10. The Council and the Bureau of Land Management will review the provisions of this Agreement on an annual basis to determine whether modification or termination is appropriate. Should the current livestock grazing program of the Bureau of Land Management be revised, the ratifying parties will mutually determine whether the provisions of the Agreement will continue to apply.

Programmatic Memorandum of Agreement
Livestock Grazing & Range Improvement Program
Bureau of Land Management
Page 5

Robert M. Utley 8/20/79
Deputy Executive Director (date)
Advisory Council on Historic
Preservation

Ed Hastey 12/31/79
**Associate** Director, Bureau of Land Management (date)

Larry E. Tise 8/26/79
President, National Conference of (date)
State Historic Preservation Officers

1/14/80
Chairman (date)
Advisory Council on Historic
Preservation

# APPENDIX 4.4: ESTIMATED POSITIVE LONG-TERM IMPACTS OF ALTERNATIVE A ON NET ANNUAL RANCH INCOME ON AFFECTED RANCHES

| | Size By Number of Brood Cows | Average Number of Brood Cows | Number of Ranches | Average Increase in Public AUMs Per Ranch | Average Percent Increase in Public AUMs Per Ranch | Average Percent Increase in Total AUMs Per Ranch | Increased Annual Income | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Average Per Ranch | Percentage Per Ranch | All Ranches |
| Small Livestock Small Cash Crop | 0-150 | 100 | 77 | 29 | 16.2 | 3.9 | 454 | 6.7 | 34,936 |
| Small Livestock Medium Cash Crop | 0-150 | 100 | 75 | 29 | 16.1 | 3.8 | 452 | 3.0 | 33,872 |
| Small Livestock Large Cash Crop | 0-150 | 100 | 22 | 32 | 18.0 | 5.6 | 505 | 1.3 | 11,116 |
| Medium Livestock Small Cash Crop | 151-374 | 250 | 52 | 36 | 9.1 | 1.4 | 568 | 3.8 | 29,511 |
| Medium Livestock Medium Cash Crop | 151-374 | 250 | 36 | 44 | 11.2 | 2.2 | 697 | 3.0 | 25,075 |
| Medium Livestock Large Cash Crop | 151-374 | 250 | 19 | 46 | 11.5 | 1.0 | 718 | 1.4 | 13,638 |
| Large Livestock Small Cash Crop | 375-749 | 500 | 36 | 51 | 10.0 | 1.6 | 795 | 3.0 | 28,603 |
| Large Livestock Medium Cash Crop | 375-749 | 500 | 10 | 90 | 17.7 | 2.5 | 1408 | 4.1 | 14,081 |
| Large Livestock Large Cash Crop | 375-749 | 500 | 4 | 10 | 2.0 | 0.1 | 157 | 0.2 | 629 |
| Very Large Livestock Small Cash Crop | 750 or more | 1500 | 14 | 122 | 8.5 | 2.6 | 895 | 1.7 | 12,527 |
| Very Large Livestock Medium Cash Crop | 750 or more | 1500 | 4 | 28 | 1.9 | 0.3 | 202 | 0.3 | 807 |
| Very Large Livestock Large Cash Crop | 750 or more | 1500 | 1 | 115 | 8.0 | 1.7 | 843 | 0.9 | 843 |
| TOTAL | | | 350 | | | | | | 205,638 |

Source: BLM 1981

# APPENDIX 4.5: ANNUAL ECONOMIC IMPACT OF ALTERNATIVE A ON THE STUDY AREA

| | Agriculture | Government | Services[8] | Trade[8] | Construction | Total | Pct of 1978 Total |
|---|---|---|---|---|---|---|---|
| Existing Situation (1978)[1] | | | | | | | |
| Earnings ($1,000) | 26,600 | 22,414 | 16,942 | 16,787 | 13,318 | 174,888[9] | 100 |
| Employment | 3,456[7] | 2,818 | 2,097 | 2,159 | 824 | 17,631[9] | 100 |
| Short-Term Changes[2] | | | | | | | |
| Sales[4] ($,1000) | 0 | - | 0 | 0 | 1,833 | - | - |
| Gross Output[4] ($1,000) | 0 | - | 0 | 0 | 3,652 | - | - |
| Earnings[4] ($1,000) | 0 | 558[10] | 0 | 0 | 1,077 | 1635[11] | 0.9 |
| Employment[3] | 0 | 25[10] | 0 | 0 | 109 | 134[11] | 0.8 |
| Long-Term Changes[2] | | | | | | | |
| Sales[6] ($1,000) | 0 | - | 0 | 0 | 0 | - | - |
| Gross Output[6] ($1,000) | 0 | - | 0 | 0 | 0 | - | - |
| Earnings[6] ($1,000) | 0 | 0[10] | 0 | 0 | 0 | 0[11] | 0 |
| Employment[5] | 0 | 0[10] | 0 | 0 | 0 | 0[11] | 0 |

1. Figures for existing situation indicate employment and earnings within the itemized sectors for 1978.

2. Figures for short-term and long-term changes indicate direct and indirect output, earnings and employment generated by the change in sales for the itemized sector (except for government section, see #10).

3. The short-term changes for employment indicate the total change from existing situation during the first 5 years of implementation.

4. The short-term changes for output, earnings and employment indicate the average annual change from the existing situation during the first 5 years of implementation.

5. Long-term changes for employment indicate the total change from the existing situation during the 10 years of implementation following the first 5 years.

6. Long-term changes for output, earnings and employment indicate the average annual change from the existing situation during the 10 years of implementation following the first 5 years.

7. Includes wage and salary and proprietory employment.

8. Recreation expenditures are divided into the service and trade sectors. The changes are displayed as zero, because no quantitative changes in wildlife population are specified.

9. This is the total listed for all sectors in Tables 3-12 and 3-13.

10. This is only the direct change associated with government earnings and employment.

11. Total for changes in agriculture, construction, services, trade and government.

SOURCE: BLM 1981

# APPENDIX 4.6: ESTIMATED NEGATIVE SHORT-TERM IMPACTS OF ALTERNATIVE B ON NET ANNUAL RANCH INCOME ON AFFECTED RANCHES

| | Size By Number of Brood Cows | Average Number of Brood Cows | Number of Ranches | Average Decrease in Public AUMs Per Ranch | Average Percent Decrease in Public AUMs Per Ranch | Average Percent Decrease in Total AUMs Per Ranch | Decreased Annual Income<br>Average Per Ranch | Decreased Annual Income<br>Percentage Per Ranch | Decreased Annual Income<br>All Ranches |
|---|---|---|---|---|---|---|---|---|---|
| Small Livestock<br>Small Cash Crop | 0-150 | 100 | 89 | 56 | 31.3 | 7.6 | 814 | 11.9 | 72,415 |
| Small Livestock<br>Medium Cash Crop | 0-150 | 100 | 82 | 43 | 23.7 | 5.5 | 618 | 4.0 | 50,638 |
| Small Livestock<br>Large Cash Crop | 0-150 | 100 | 29 | 40 | 22.5 | 7.0 | 588 | 1.5 | 17,046 |
| Medium Livestock<br>Small Cash Crop | 151-374 | 250 | 70 | 94 | 23.7 | 3.6 | 1471 | 9.8 | 102,997 |
| Medium Livestock<br>Medium Cash Crop | 151-374 | 250 | 41 | 120 | 30.3 | 5.9 | 1874 | 8.1 | 76,836 |
| Medium Livestock<br>Large Cash Crop | 151-374 | 250 | 19 | 60 | 15.1 | 1.4 | 937 | 1.8 | 17,805 |
| Large Livestock<br>Small Cash Crop | 375-749 | 500 | 41 | 177 | 35.0 | 5.5 | 2770 | 10.5 | 113,571 |
| Large Livestock<br>Medium Cash Crop | 375-749 | 500 | 16 | 194 | 23.3 | 3.4 | 3026 | 8.8 | 48,410 |
| Large Livestock<br>Large Cash Crop | 375-749 | 500 | 6 | 122 | 24.1 | 0.1 | 1902 | 2.5 | 11,412 |
| Very Large Livestock<br>Small Cash Crop | 750 or more | 1500 | 21 | 482 | 33.6 | 10.1 | 3434 | 6.4 | 72,123 |
| Very Large Livestock<br>Medium Cash Crop | 750 or more | 1500 | 2 | 258 | 18.0 | 2.9 | 1852 | 3.1 | 3,705 |
| Very Large Livestock<br>Large Cash Crop | 750 or more | 1500 | 2 | 164 | 11.4 | 2.5 | 1174 | 1.2 | 2,348 |
| TOTAL | | | 418 | | | | | | 589,306 |

Source: BLM 1981

# APPENDIX 4.7: ESTIMATED POSITIVE LONG-TERM IMPACTS OF ALTERNATIVE B ON NET ANNUAL RANCH INCOME ON AFFECTED RANCHES

| | Size By Number of Brood Cows | Average Number of Brood Cows | Number of Ranches | Average Increase In Public AUMs Per Ranch | Average Percent Increase In Public AUMs Per Ranch | Average Percent Increase in Total AUMs Per Ranch | Increased Annual Income: Average Per Ranch | Increased Annual Income: Percentage Per Ranch | Increased Annual Income: All Ranches |
|---|---|---|---|---|---|---|---|---|---|
| Small Livestock<br>Small Cash Crop | 0-150 | 100 | 44 | 28 | 15.7 | 3.8 | 440 | 6.5 | 19,366 |
| Small Livestock<br>Medium Cash Crop | 0-150 | 100 | 48 | 28 | 15.4 | 3.6 | 431 | 2.8 | 20,678 |
| Small Livestock<br>Large Cash Crop | 0-150 | 100 | 12 | 29 | 16.3 | 5.1 | 459 | 1.2 | 5,502 |
| Medium Livestock<br>Small Cash Crop | 151-374 | 250 | 22 | 34 | 8.6 | 1.3 | 533 | 3.6 | 11,735 |
| Medium Livestock<br>Medium Cash Crop | 151-374 | 250 | 21 | 56 | 14.2 | 2.8 | 885 | 3.8 | 18,593 |
| Medium Livestock<br>Large Cash Crop | 151-374 | 250 | 10 | 51 | 12.9 | 1.2 | 805 | 1.5 | 8,054 |
| Large Livestock<br>Small Cash Crop | 375-749 | 500 | 12 | 26 | 5.1 | 0.8 | 408 | 1.5 | 4,893 |
| Large Livestock<br>Medium Cash Crop | 375-749 | 500 | 3 | 25 | 4.9 | 0.7 | 388 | 1.1 | 1,164 |
| Large Livestock<br>Large Cash Crop | 375-749 | 500 | 0 | 0 | - | - | - | - | 0 |
| Very Large Livestock<br>Small Cash Crop | 750 or more | 1500 | 2 | 23 | 1.6 | 0.5 | 165 | 0.3 | 330 |
| Very Large Livestock<br>Medium Cash Crop | 750 or more | 1500 | 2 | 43 | 3.0 | 0.5 | 312 | 0.5 | 623 |
| Very Large Livestock<br>Large Cash Crop | 750 or more | 1500 | 0 | 0 | - | - | - | - | 0 |
| TOTAL | | | 176 | | | | | | 90,938 |

Source: BLM 1981

# APPENDIX 4.8: ESTIMATED NEGATIVE LONG-TERM IMPACTS OF ALTERNATIVE B ON NET ANNUAL RANCH INCOME ON AFFECTED RANCHES

| | Size By Number of Brood Cows | Average Number of Brood Cows | Number of Ranches | Average Decrease in Public AUMs Per Ranch | Average Percent Decrease in Public AUMs Per Ranch | Average Percent Decrease in Total AUMs Per Ranch | Decreased Annual Income | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Average Per Ranch | Percentage Per Ranch | All Ranches |
| Small Livestock<br>Small Cash Crop | 0-150 | 100 | 73 | 56 | 31.3 | 7.6 | 814 | 12.0 | 59,449 |
| Small Livestock<br>Medium Cash Crop | 0-150 | 100 | 58 | 45 | 25.2 | 5.9 | 656 | 4.3 | 38,055 |
| Small Livestock<br>Large Cash Crop | 0-150 | 100 | 22 | 42 | 23.6 | 7.3 | 616 | 1.5 | 13,542 |
| Medium Livestock<br>Small Cash Crop | 151-374 | 250 | 56 | 97 | 24.5 | 3.7 | 1520 | 10.1 | 85,135 |
| Medium Livestock<br>Medium Cash Crop | 151-374 | 250 | 32 | 129 | 32.7 | 6.4 | 2017 | 8.7 | 64,535 |
| Medium Livestock<br>Large Cash Crop | 151-374 | 250 | 14 | 55 | 13.7 | 1.2 | 853 | 1.6 | 11,946 |
| Large Livestock<br>Small Cash Crop | 375-749 | 500 | 36 | 168 | 33.2 | 5.2 | 2625 | 9.9 | 94,500 |
| Large Livestock<br>Medium Cash Crop | 375-749 | 500 | 14 | 163 | 32.2 | 4.6 | 2552 | 7.4 | 35,727 |
| Large Livestock<br>Large Cash Crop | 375-749 | 500 | 6 | 115 | 22.7 | 0.9 | 1798 | 2.4 | 10,785 |
| Very Large Livestock<br>Small Cash Crop | 750 or more | 1500 | 20 | 443 | 30.8 | 9.3 | 3158 | 5.9 | 63,166 |
| Very Large Livestock<br>Medium Cash Crop | 750 or more | 1500 | 2 | 246 | 17.1 | 2.7 | 1763 | 3.0 | 3,525 |
| Very Large Livestock<br>Large Cash Crop | 750 or more | 1500 | 2 | 75 | 5.2 | 1.1 | 535 | 0.5 | 1,070 |
| TOTAL | | | 335 | | | | | | 481,435 |

Source: BLM 1981

# APPENDIX 4.9: ANNUAL ECONOMIC IMPACT OF ALTERNATIVE B ON THE STUDY AREA

| | Agriculture | Government | Services[8] | Trade[8] | Construction | Total | Pct of 1978 Total |
|---|---|---|---|---|---|---|---|
| Existing Situation (1978)[1] | | | | | | | |
| Earnings ($1,000) | 26,600 | 22,414 | 16,942 | 16,787 | 13,318 | 174,888 | 100 |
| Employment | 3,456[7] | 2,818 | 2,097 | 2,159 | 824 | 17,631[9] | 100 |
| Short-Term Changes[2] | | | | | | | |
| Sales[4] ($,1000) | - 438 | - | 0 | 0 | 1,833 | - | - |
| Gross Output[4] ($1,000) | -1,131 | - | 0 | 0 | 3,652 | - | - |
| Earnings[4] ($1,000) | - 277 | 558[10] | 0 | 0 | 1,077 | 1358[11] | 0.8 |
| Employment[3] | - 28 | 25[10] | 0 | 0 | 109 | 106[11] | 0.6 |
| Long-Term Changes[2] | | | | | | | |
| Sales[6] ($1,000) | - 368 | - | 0 | 0 | 0 | - | - |
| Gross Output[6] ($1,000) | - 950 | - | 0 | 0 | 0 | - | - |
| Earnings[6] ($1,000) | - 231 | 0[10] | 0 | 0 | 0 | -231[11] | 0.1 |
| Employment[5] | - 23 | 0[10] | 0 | 0 | 0 | -23[11] | 0.1 |

1. Figures for existing situation indicate employment and earnings within the itemized sectors for 1978.

2. Figures for short-term and long-term changes indicate direct and indirect output, earnings and employment generated by the change in sales for the itemized sector (except for government section, see #10).

3. The short-term changes for employment indicate the total change from existing situation during the first 5 years of implementation.

4. The short-term changes for output, earnings and employment indicate the average annual change from the existing situation during the first 5 years of implementation.

5. Long-term changes for employment indicate the total change from the existing situation during the 10 years of implementation following the first 5 years.

6. Long-term changes for output, earnings and employment indicate the average annual change from the existing situation during the 10 years of implementation following the first 5 years.

7. Includes wage and salary and proprietory employment.

8. Recreation expenditures are divided into the service and trade sectors. The changes are displayed as zero, because no quantitative changes in wildlife population are specified.

9. This is the total listed for all sectors in Tables 3-12 and 3-13.

10. This is only the direct change associated with government earnings and employment.

11. Total for changes in agriculture, construction, services, trade and government.

SOURCE: BLM 1981

# APPENDIX 4.10: ESTIMATED NEGATIVE LONG AND SHORT-TERM IMPACTS OF ALTERNATIVE C ON NET ANNUAL RANCH INCOME ON AFFECTED RANCHES

| | Size By Number of Brood Cows | Average Number of Brood Cows | Number of Ranches | Average Decrease in Public AUMs Per Ranch | Average Percent Decrease in Public AUMs Per Ranch | Average Percent Decrease in Total AUMs Per Ranch | Decreased Annual Income | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Average Per Ranch | Percentage Per Ranch | All Ranches |
| Small Livestock<br>Small Cash Crop | 0-150 | 100 | 140 | 179 | 100 | 24.8 | 2,596 | 38 | 363,486 |
| Small Livestock<br>Medium Cash Crop | 0-150 | 100 | 124 | 179 | 100 | 24.8 | 2,596 | 17 | 321,945 |
| Small Livestock<br>Large Cash Crop | 0-150 | 100 | 36 | 179 | 100 | 24.8 | 2,596 | 7 | 93,468 |
| Medium Livestock<br>Small Cash Crop | 151-374 | 250 | 104 | 396 | 100 | 15.7 | 5,852 | 39 | 608,565 |
| Medium Livestock<br>Medium Cash Crop | 151-374 | 250 | 62 | 396 | 100 | 15.7 | 5,852 | 25 | 362,798 |
| Medium Livestock<br>Large Cash Crop | 151-374 | 250 | 27 | 396 | 100 | 15.7 | 5,852 | 11 | 157,993 |
| Large Livestock<br>Small Cash Crop | 375-749 | 500 | 58 | 830 | 100 | 14.5 | 12,183 | 46 | 706,599 |
| Large Livestock<br>Medium Cash Crop | 375-749 | 500 | 17 | 830 | 100 | 14.5 | 12,183 | 35 | 207,107 |
| Large Livestock<br>Large Cash Crop | 375-749 | 500 | 6 | 830 | 100 | 14.5 | 12,183 | 16 | 73,096 |
| Very Large Livestock<br>Small Cash Crop | 750 or more | 1,500 | 29 | 1,435 | 100 | 12.9 | 9,606 | 18 | 278,580 |
| Very Large Livestock<br>Medium Cash Crop | 750 or more | 1,500 | 3 | 1,435 | 100 | 12.9 | 9,606 | 16 | 28,819 |
| Very Large Livestock<br>Large Cash Crop | 750 or more | 1,500 | 2 | 1,435 | 100 | 12.9 | 9,606 | 10 | 19,212 |
| TOTAL | | | 608 | | | | | | 3,221,668 |

Source: BLM 1981

# APPENDIX 4.11: ANNUAL ECONOMIC IMPACT OF ALTERNATIVE C ON THE STUDY AREA

| | Agriculture | Government | Services[8] | Trade[8] | Construction | Total | Pct of 1978 Total |
|---|---|---|---|---|---|---|---|
| Existing Situation (1978)[1] | | | | | | | |
| Earnings ($1,000) | 26,600 | 22,414 | 16,942 | 16,787 | 13,318 | 174,888[9] | 100 |
| Employment | 3,456[7] | 2,818 | 2,097 | 2,159 | 824 | 17,631[9] | 100 |
| Short-Term Changes[2] | | | | | | | |
| Sales[4] ($,1000) | - 4,759 | - | 0 | 0 | 3,992 | - | - |
| Gross Output[4] ($1,000) | - 12,282 | - | 0 | 0 | 7,952 | - | - |
| Earnings[4] ($1,000) | - 3,009 | 162[10] | 0 | 0 | 2,346 | -501[11] | 0.3 |
| Employment[3] | - 303 | 7[10] | 0 | 0 | 236 | -60[11] | 0.3 |
| Long-Term Changes[2] | | | | | | | |
| Sales[6] ($1,000) | - 4,759 | - | 0 | 0 | 0 | - | - |
| Gross Output[6] ($1,000) | - 12,282 | - | 0 | 0 | 0 | - | - |
| Earnings[6] ($1,000) | - 3,009 | 0[10] | 0 | 0 | 0 | -3009[11] | 1.7 |
| Employment[5] | - 303 | 0[10] | 0 | 0 | 0 | -303[11] | 1.7 |

1. Figures for existing situation indicate employment and earnings within the itemized sectors for 1978.
2. Figures for short-term and long-term changes indicate direct and indirect output, earnings and employment generated by the change in sales for the itemized sector (except for government section, see #10).
3. The short-term changes for employment indicate the total change from existing situation during the first 5 years of implementation.
4. The short-term changes for output, earnings and employment indicate the average annual change from the existing situation during the first 5 years of implementation.
5. Long-term changes for employment indicate the total change from the existing situation during the 10 years of implementation following the first 5 years.
6. Long-term changes for output, earnings and employment indicate the average annual change from the existing situation during the 10 years of implementation following the first 5 years.
7. Includes wage and salary and proprietory employment.
8. Recreation expenditures are divided into the service and trade sectors. The changes are displayed as zero, because no quantitative changes in wildlife population are specified.
9. This is the total listed for all sectors in Tables 3.12 and 3.13.
10. This is only the direct change associated with government earnings and employment.
11. Total for changes in agriculture, construction, services, trade and government.

SOURCE: BLM 1981

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# GLOSSARY

CCELERATED EROSION. Erosion processes increased by the ctivities of man. See "Erosion."

CID SOIL. Soil with a pH value less than 6.6.

CRE-FOOT. A unit for measuring volume, equal to the quantity water or other material required to cover 1 acre to a depth of 1 oot or a volume of 43,560 cubic feet.

CTUAL USE. (1) The actual amount of grazing by livestock nd or game animals (2) The index of actual use submitted by estock operators (#s, class of stock, season) expressed in UM's.

DJUSTMENTS. Changes in animal numbers, seasons of use, nds or class of animals or management practices as warranted specific condition.

LKALINE SOIL. A soil that is alkaline throughout most or all of he parts occupied by plant roots. It is any soil horizon having a pH alue greater than 7.3.

LLOTMENT. An area of land where livestock operators graze heir livestock.

LLOTMENT MANAGEMENT PLAN (AMP). A written program f livestock grazing management, including supportive measures required, designed to attain specific management goals in a razing allotment.

LLOWABLE USE. The amount of use the various plant species an withstand and still maintain their vigor and reproductive apabilities.

LLUVIAL SOIL. A soil developing from recently deposited alluvium and showing essentially no development of layers or modification of the recently deposited materials.

LLUVIUM. Soil and rock debris deposited by streams.

NIMAL UNIT (AU). Considered to be mature (1000 lb) cow or he equivalent, based on an average consumption of 26 lbs of dry orage per day (800 lb/month).

NIMAL UNIT MONTH (AUM). (1) The amount of forage necessary for sustenance of one animal unit for one month; (2) The measurement of the privilege of grazing one animal unit for one month.

PPRECIATION. Increase in cost, price or value over the cost, rice or value from a previous time or period.

QUATIC. Living or growing in or on the water.

QUIFER. A rock formation, group of rock formations or part of a rock formation that contains enough water-saturated permeable material to yield water to a spring or well.

SPECT. The orientation of a slope with respect to the compass; position facing or fronting a particular direction; also, the visual first impression of vegetation at a particular time or as seen from a specific point.

VAILABLE WATER CAPACITY. The portion of water in a soil hat can readily be absorbed by plant roots. It is rated on soil characteristics that influence the ability of the soil to hold water such as content of organic matter, soil texture and soil structure.

AWNS. A slender bristle found at the tips of the spikelets in many grasses.

BEDROCK. The solid unweathered rock underlying soils.

BROWSE. To browse is to graze a plant; also, browse (noun) is the tender shoots, twigs and leaves of trees and shrubs often used as food by cattle, deer, elk and other animals.

BUFFER ZONE/BUFFER STRIP. Area of land adjacent to a body of water which filters sediment from overland runoff and has a stabilizing influence on the bank or shoreline.

BULK DENSITY (SOIL). The mass of dry soil per unit of bulk volume.

CALCAREOUS SOIL. Soil containing sufficient free calcium carbonate or calcium magnesium carbonate to effervesce visibly when treated with cold hydrochloric acid.

CALF CROP. The number of calves weaned from a given number of cows bred, usually expressed in percentages.

CANOPY COVER. The percentage of ground covered when a polygon drawn around the extremities of the undisturbed canopy of each plant is projected on the ground and all such projections on a given area are added together.

CHANNEL. An open conduit either naturally or artificially created which periodically or continuously contains moving water or forms a connecting link between two bodies of water.

CHANNEL STABILITY. A relative term describing erosion or movement of the channel walls or bottom due to water flow.

CHARACTERISTIC LANDSCAPE. The established landscape in an area, not necessarily a natural area. It could refer to a farming community, urban area or any other landscape which has an identifiable character.

CHISELING. Shallow tillage of the range to speed range improvement by increasing infiltration and reducing competition to desirable species from a dense stand of less desirable vegetation.

CLAYEY. A soil containing more than 35% clay. The textural classes are sandy clay, silty clay, clay, clay loam and silty clay loam.

CLAYPAN. A dense, compact layer in the subsoil having a much higher clay content than the overlying material from which it is separated by a sharply defined boundary.

CLIMAX. The highest ecological development of a plant community capable of perpetuation under the prevailing climatic and soil conditions.

COMPACTION. The process of packing firmly and closely together; the state of being so packed, e.g., mechanical compaction of soil by livestock or vehicular activity. Soil compaction results from particles being pressed together so that the volume of the soil is reduced. It is influenced by the physical properties of the soil, moisture content and the type and amount of compactive effort.

CONTRAST. The effect of a change in the form, line, color or texture of an existing landscape resulting from the addition of a manmade feature.

CONTOUR FURROW. A plowed strip on the contour of the land for water retention.

COW CALF OPERATION. A livestock operation in which a basic breeding herd of cows, heifers and bulls is maintained. The cows produce a calf crop each year and the operation keeps some heifer calves from each crop for breeding herd replacements. The operation sells the rest of the calf crop between the ages of 6-12 months along with old or non-productive cows and bulls.

CRUCIAL BIG GAME WINTER RANGE. Observation(s) of 5 or more animals per square mile.

CRUCIAL WILDLIFE HABITAT. Parts of the habitat necessary to sustain a wildlife population at critical periods of its life cycle. This is often a limiting factor on the population, such as breeding habitat, winter habitat, etc.

CULTURAL RESOURCES. A term that includes items of historical, archaeological or architectural significance which are fragile, limited and non-renewable portions of the human environment.

CULTURAL SITE. Any location that includes prehistoric and/or historic evidence of human use.

DEFERMENT. The withholding of livestock grazing to provide for plant reproduction, establishment, or vigor recovery.

DEFERRED GRAZING. The use of deferment in grazing management.

DEFERRED ROTATION GRAZING. Deferment of livestock grazing on various parts of a range in succeeding years; systematic rotation of grazing deferment among pastures.

DEPRECIATION. As used in this EIS, depreciation is the annual expense incurred in writing off costs of depreciable assets over their useful life.

DETENTION DAM. A dam constructed for the temporary storage of flood flows where the release opening is of fixed capacity and is not manually operated.

DIET OVERLAP. The presence of the same forage plant in the diet of several herbivores.

DIRECT INCOME. Income coming from a specific source.

DISCLIMAX. A relatively stable ecological community which displaces the climax because of a disturbance.

DISTRIBUTION. The uniformity of livestock grazing over a range area. Distribution is affected by the availability of water, topography and type and palatability of vegetation as well as other factors.

DRAINAGE (INTERNAL SOIL). The property of a soil that permits the downward flow of excess water. Drainage is reflected in the number of times and in the length of time water stays in the soil. It is influenced by the physical characteristics of the soil profile, the underlying layers and the depth of the water table.

DRAINAGE CLASSES (OF SOILS).

"Very Poorly Drained." Water is removed from the soil so slowly that free water remains at or near the surface during most of the growing season. Soils of this drainage class occupy level or depressed sites and are frequently ponded.

"Poorly Drained." Water is removed from the soil so slowly that the soil remains wet and the water table remains near the surface during a large part of the year.

"Somewhat Poorly Drained." Water is removed from the soil slowly enough to keep the soil wet for significant periods during the growing season.

"Moderately Well-Drained." Water is removed from the soil somewhat slowly during some periods. The soil is wet for a small part of the growing season.

"Well-Drained." Water is removed from the soil readily but not rapidly. Water is available for plant growth through most of the growing season and wetness does not inhibit growth of roots.

"Somewhat Excessively Drained." Water is removed from the soil rapidly. Soils may be shallow or sandy and rapidly pervious. Some are so steep that much of the water they receive is lost in runoff.

"Excessively Drained." Water is removed from the soil very rapidly. These soils are commonly coarse textured, rocky, shallow or steep.

ECOLOGICAL RANGE CONDITION CLASSES. Four classes used to express the degree to which the composition of the present plant community reflects that of climax. They are:

| **"Condition Class"** | **Percentage** |
|---|---|
| Excellent | 76-100 |
| Good | 51-75 |
| Fair | 26-50 |
| Poor | 0-25 |

ECOSYSTEM. An ecological community together with its physical environment. Its functioning involves the circulation of matter and energy between organisms and their environment.

EDGE. A diversity of habitats available in a relatively small area, i.e. where habitats "edge" into one another.

ELIMINATION OF GRAZING. Relinquishment or cancellation of livestock grazing on public lands currently being grazed by livestock.

ENDANGERED OR THREATENED SPECIES.

Determined for plants and animals by one or a combination of the following factors:

1. The present or threatened destruction, modification or curtailments of a species habitat or range.
2. Over utilization of a species for commercial, sporting, scientific or education purposes.
3. Disease or predation of the species.
4. The inadequacy of existing regulatory mechanisms.
5. Other natural or human caused factors affecting a species' continued existence.

ENVIRONMENTAL IMPACT STATEMENT (EIS). A written analysis of the impacts on the environment of a proposed action.

EPHEMERAL STREAM. A stream that flows only after rains or during snowmelt.

EQUITY CAPITAL INVESTMENT. The net value of a ranch property obtained by subtracting from its total value the amount owed on it.

EROSION. The wearing away of the land surface by running water, wind, ice or other geological agents.

EROSION CONDITION CLASSES. Expression of current erosion activity by use of the following ratings (soil surface factor): stable, 0-20; slight, 21-40; moderate, 41-60; critical, 61-80; severe, 81-100.

EROSION SUSCEPTIBILITY. The susceptibility of a soil to erosion when no cover is present. The rate of soil displacement depends on the physical properties of the soil, rainfall intensity and slope gradient.

EXPOSURE. Direction of a slope in respect to points of the compass.

FECAL COLIFORM. Bacteria that are present in the intestine and feces of warm blooded animals. Their presence in water indicates fecal contaimination.

FEDERAL LAND POLICY AND MANAGEMENT ACT OF 1976 (FLPMA). Public Law 94-579, October 21, 1976. often referred to as the BLMs "Organic Act," which provides the majority of the BLM's legislated authority, direction, policy and basic management guidance.

FLOODPLAIN. The relatively flat area or lowland adjoining a drainage.

FORB. A broadleafed herb that is not grass, sedge or rush.

FRIABLE. A soil with a loose surface that is easily crumbled or pulverized.

GEOMORPHIC. Pertaining to the form of the earth or its surface features.

GEOMORPHIC SOIL SUBGROUP. A group of soils having a unique kind and degree of limitation for alternative land use and treatment based on parent material, soil quality and landscape features.

GLACIAL TILL. Unstratified glacial drift deposited directly by the ice consisting of clay, silt, sand, gravel and boulders intermingled in any proportion.

GRANDFATHERED ACTIVITY. For wilderness purposes, any land surface disturbance or alteration that had occurred within a Wilderness Study Area prior to the passage of FLPMA (October 21, 1976).

GRAZING DISTRICT. Established by the Taylor Grazing Act, grazing districts are administrative subdivisions of the rangelands under jurisdiction of the BLM.

GRAZING SYSTEM. The manipulation of livestock grazing to accomplish a desired result.

GROUND COVER. Vegetation, mulch, litter, rocks, etc.

GROUNDWATER. Water contained in pore spaces of consolidated and unconsolidated subsurface material.

GULLYING. The erosion process whereby water accumulates in narrow channels and, over short periods, removes the soil from this narrow area to considerable depths, ranging from 0.5 meter (1.6 feet) to as much as 25 to 30 meters (83 to 100 feet).

HABITAT. A specific set of physical conditions that surround a species, group of species or a large community. In wildlife management, the major constituents of habitat are considered to be food, water, cover and living space.

HYDROLOGIC GEOMORPHIC AREAS.

Rolling Plains: Soils sedimentary in origin with loamy and sandy textures. Vegetation is grassland (short and midgrasses). In the Big Dry Resource Area, all soil series described by soil subgroups 3, 4, 7, 8 and 12 commonly occur in these watersheds.

Glaciated Plains: Soils are complex and derived from glacial till, sedimentary bedrock and allivium from mixed rock sources. Within these complexes, soils have loamy textures, and claypan to dense clay textures. Vegetation is grassland—sagebrush type (short to midgrasses). In the Big Dry Resource Area, all soil series described by soil subgroups 5, 6 and 10 commonly occur in these watersheds.

Rolling Plains: Soils are sedimentary in origin, and have clayey and loamy textures. Vegetation is grassland, sagebrush, and juniper. In the Big Dry Resource Area, all soil series described by soil subgroups 1, 9, 11 and 13 commonly occur in these watersheds.

River Breaks: These geomorphic areas are confined to lands adjacent to the Missouri, Musselshell, Powder and Yellowstone Rivers, including some major tributaries to these rivers. Soil textures are clayey and shallow soils are common. Vegetative types most represented are grassland, sagebrush, juniper, and ponderosa pine. In the Big Dry Resource Area, all soil series described by soil subgroups 14 and 15 commonly occur in these watersheds.

HYDROLOGY. The science dealing with the behavior of water as it occurs in the atmosphere, on the surface of the ground and underground.

INDIRECT BUSINESS ACTIVITY. Total income produced in other economic sectors (such as in retail trade) by the receipt of income in a different sector (such as in the livestock industry).

INDUSTRY INCOME MULTIPLIER. An indicator of the income stimulated from the regional economy by an economic sector (e.g. government, agriculture) above and beyond the initial income produced by that sector.

INFILTRATION. The penetration of water into the soil surface through pores of the soil. The rate and amount of infilitration is limited by the size and abundance of pores, organic matter content and the water absorption capacity of the soil.

INFILTRATION CAPACITY. The maximum rate at which the soil, when in a given condition, can absorb falling rain or melting snow.

NTERIM MANAGEMENT POLICY AND GUIDELINES FOR ANDS UNDER WILDERNESS REVIEW (IMP). A BLM docuent, dated December 12, 1979, which defines the policy for nagement of Wilderness Study Areas until a final determinaon on Wilderness designation is made by Congress.

NTERMITTENT STREAM. A stream which flows most of the me but ocassionally is dry or reduced to pool stage.

NTERSEEDING. The practice of seeding native or introduced ant species into native range in combination with various echanical treatments. Interseeding differs from range seeding that only part of the native vegetation is removed to provide a eed bed for the seeded species.

EY SPECIES. Major forage species on which range management should be based.

AND CAPABILITY CLASS (LCC). A soil conservation service stem where land is classified according to a suitable sustained se that can be made of it while providing for adequate protection om erosion or other means of deterioration.

ANDSCAPE. All natural features such as fields, hills, forests, etc., hich distinguish one part of the earth's surface from another art.

AND TREATMENT. All methods of artificial range/soil mprovement and stabilization such as reseeding, brush control hemical and mechanical), pitting, furrowing, waterspreading, escribed fire, etc.

EASE (GRAZING). A document authorizing use of the public nds outside grazing districts under section 15 of the Taylor razing Act for grazing livestock.

IVESTOCK OPERATION. The management of a ranch or farm o that a significant portion of the income is derived from the ontinuing production of livestock.

OAMY. Soil that is intermediate in texture and properties etween sandy and clayey soils. Textural classes are sandy loam, ne sandy loam, very fine sandy loam, loam, silt liam, silt, sandy ay loam, and clay loam with clay content between 18 and 35 ercent.

ANAGEMENT FRAMEWORK PLAN (MFP). A planning decion document that establishes, for a given planning area, land se allocations, coordination guidelines for multiple use, and anagement objectives to be achieved for each class of land use r protection. It is the BLM's land use plan. An MFP is prepared in ree steps: (1) resource recommendations, (2) impact analysis nd alternative development, and (3) decision making.

ECHANICAL TREATMENTS. Treatment by mechanical means f an area of range including contour furrowing, pitting, plowing nd seeding, chiseling, scalping, water spreaders, etc.

ITIGATION MEASURES. Methods or procedures committed to y BLM for the purpose of reducing or lessening the impacts of an tion.

ULTIPLE USE. Balanced management of the various surface nd subsurface resources, without permanent impairment of the productivity of the land, that will best meet present and future needs.

NET RANCH INCOME. The personal income available to the operator and his family for their labor and management and the return to their equity capital investment. Net ranch income is figured as the gross cash receipts of the ranch minus cash operating expenses and depreciation.

NONCONSUMPTIVE USES. Those uses of public lands which no actual utilization of vegetation occurs. These uses consist of watershed, nonconsumptive recreation, esthetics, etc.

NONUSE. Grazing capacity which is not licensed during a given time period.

NUTRIENT LOADING. A weight/time measure used to express the amount of elements or compounds in water, such as carbon, oxygen, nitrogen and phosphorous, which are essential as raw materials for organism growth.

OFF-ROAD VEHICLE (ORV). Any motorized tract or wheeled vehicle designed for cross-country travel over any type of natural terrain.

OPPORTUNITY COST OF CAPITAL. The most favorable economic return that capital could accrue if it were invested in something other than the ranch operation.

"PAPER CHANGE" IN PERMIT VALUE. The change in permit value caused by an increase or decrease in the authorized use of BLM AUMs with no real increase or decrease in the actual number of AUMs being grazed by livestock.

PARENT MATERIAL. The unconsolidated and more or less chemically weathered mineral or organic matter from which the horizons of soils are developed by natural processes.

PEAK DISCHARGE. The highest stage or channel flow attained by a flood, usually expressed as the volume of water in cubic feet passing a given point in a one second time period, hence, cubic feet/second.

PEDESTALING. A phenomenon of erosion where plants or rocks are left standing on pedestals of soil. Pedestals are formed because a rock or plant has protected the soil underneath from wind and water erosion.

PERCENT OPTIMUM COVER. That percent of soil stabilizing cover consisting of vegetation, rocks, logs, etc.

PERCENTAGE OF USE. Grazing use of current vegetation growth, usually expressed as a percentage of weight removed.

PERENNIAL (PERMANENT) STREAM. A stream which flows nine or more months out of a year.

PERMEABILITY. The ease with which gases, liquids or plant roots pass through a layer of soil. Accepted as a measure of this property is the rate at which soil transmits water while saturated, and may imply how well water passes through the least permeable soil layer.

pH. The degree of acidity or alkalinity of a soil.

PERMIT (GRAZING). An authorization that permits the grazing of a specified number and kind of livestock on a designated area of public lands for a period of time, under authority of the Taylor Grazing Act.

PERMIT VALUE. The market value of a BLM grazing permit which is often included in the overall market value of the ranch.

PLANNING AREA ANALYSIS (PAA). The PAA analyzes present and future public demand for lands, renewable and nonrenewable resources. Based on data in the URA, the socio-economic profile and other information from the region, the PAA shows the significance of the land uses within a planning area to users and operators, to the community and to the region.

PLANT SUCCESSION. The process of vegetative development whereby an area becomes successively occupied by different plant communities of higher ecological orders.

PROPER USE. The degree and time of use of the current year's plant growth which, if continued, will either maintain or improve the range condition consistent with conservation of other natural resources.

PROPER USE FACTOR. The degree of use a kind of grazing animal will make of a particular plant when the range is properly grazed.

PUBLIC LANDS. Any land and interest in land (outside of Alaksa) owned by the United States and administered by the Secretary of the Interior through the Bureau of Land Management.

PUBLIC PARTICIPATION. Part of BLM's planning system that provides the opportunity for citizens as individuals or groups to express local, regional, and national perspectives and concerns in the rule making, decision making, inventory and planning processes for public lands. This includes public meetings, hearings, or advisory boards or panels that may review resource management proposals and offer suggestions or criticisms for the various alternatives considered.

RANCH DEPENDENCY. As used in this EIS, the amount of public grazing divided by the total grazing requirements of a ranch operation.

RANGE CONDITION. The present state of vegetation of a range site in relation to the climax plant community of that site. It is an expression of the relative degree to which the kinds, proportions and amounts of plants in a plant community resemble that of the climax plant community for that site. Range condition is basically an ecological rating of the plant community. Air-dry weight is the unit of measure used in comparing the composition and production of the present plant community with that of the climax community.

RANGE DEVELOPMENT. A structure, excavation, treatment or development to rehabilitate, protect or improve public lands to advance range betterment. "Range Development" is synomymous with "Range Development."

RANGE FACILITIES. Any structure or excavation such as water sources, oilers, etc. designed to facilitate range management.

RANGE IMPROVEMENT. Any of a number of facilities or land (e.g. fences, water developments, reseeding etc.) to increase range production and improve the utilization of the range by grazing animals.

RANGE SEEDING. The process of establishing vegetation by mechanical dissemination of seed.

RANGE SITE. A distinctive kind of rangeland that differs from other kinds of rangeland in its ability to produce a characteristic natural plant community. A range site is the product of all the environmental factors responsible for its development. It is capable of supporting a native plant community typified by an association of species that differs from that of other range sites in the kind or proportion of species or in total production.

RANGE TREND. The direction of change in range condition.

RECREATIONAL OPPORTUNITY. Those outdoor recreation activities which offer satisfaction in a particular physical, social and management setting. In the Big Dry EIS area, these activities are primarily hunting, fishing, wildlife viewing, picnicking and, in some areas, boating and camping.

REPRESENTATIVE RANCH BUDGET. A schedule of average costs, receipts and income for a typical ranch of a given size and type.

RESIDUAL GROUND COVER. That portion of the total vegetative ground cover that remains after the livestock grazing season.

REST ROTATION GRAZING. An intensive system of management where grazing is deferred on various parts of the range during succeeding years, allowing the deferred part complete rest for one year. Two or more units are required. Control by fencing is usually necessary on cattle range but may be obtained by herding on sheep ranges.

RIPARIAN AREA. A specialized form of wetland with vegetation that requires large amounts of free or unbound water, usually associated with wet meadows, subirrigated or saline lowland range sites.

RIPPING. The mechanical penetration and shearing of soils to break hardpan layers to facilitate penetration of plant roots, water, organic matter, and nutrients. Used where native grasses of a rhizomatous nature can spread into the ripped soil.

RUNOFF. The water that flows on the land surface from an area in response to rainfall or snowmelt. As used in this EIS, runoff from an area becomes streamflow when it reaches a channel.

SALINE SEEP. Areas of recently developed salinity in soils that are non-irrigated but are wet some or all of the time and often have white salt crusts. Grass production on saline seeps is reduced or eliminated.

SALINE SOIL. A non-sodic soil containing sufficient soluble salt to impair its productivity. The electric conductivity of the saturation extract is more than two michrohms per centimeter at 25° C.

SALINITY. A measure of the mineral substances disolved in water.

SANDY. A soil containing a large amount of sand. Textural classes are sands and loamy sands, with less than 18 percent clay.

SCALPING. Removing 10 to 25 inch wide strips of native vegetation and leaving undisturbed strips between. This mechanical treatment speeds range improvement by retaining rain, water and snowmelt and by reducing competition to desirable species from a dense stand of less desirable vegetation.

SCOPING (PUBLIC). The process for determining the scope of issues addressed and identification of significant issues related to a proposed action. The participation is invited of affected federal, state, and local agencies and affected Indian tribes and other interested persons to participate in this process.

SEASON OF USE. The time of livestock grazing on a range area.

SEASONAL GRAZING. Grazing use throughout a specific season.

SEDIMENT. Soil, rock particles and organic or other debris carried from one place to another by wind, water or gravity.

SEDIMENTATION. The action or process of deposition of material borne by water, wind or glacier.

SEDIMENTARY ROCK. A rock formed from materials deposited from suspension or precipitated from solution and usually being more or less consolidated. The principal sedimentary rocks are sandstone, shales and limestones.

SEDIMENT YIELD. The total amount of sediment given up by a watershed over a specified time period, usually a year. Ordinarily it is expressed as tons, acre feet or cubic yards of sediment per unit of drainage area per year.

SHEET EROSION. The detachment of soil material from the land surface by raindrop impact and its subsequent removal removal by runoff.

SHRUB. A low woody plant, usually with several stems, that may provide food and/or cover for animals.

SODIC SOIL. A soil containing sufficient exchangeable sodium to interfere with the growth of most crop plants. A soil in which the sodium absorption ration of the saturation extract is 15 or more.

SOIL. The unconsolidated mineral material on the immediate surface of the earth that serves as a natural medium for the growth of land plants.

SOIL ASSOCIATION. A mapping unit used on general soil maps in which two or more defined series occuring together in a characteristic pattern are combined. This could be because the scale of the map or the purpose for which it is being made does not require delineation of the individual series.

SOIL LOSS. The detachment of material from the land surface by raindrop impact and its subsequent removal by prechannel or overland flow. Synonymous with "Sheet Erosion."

SOIL MAP. A map showing the distribution of soil series or other soil mapping units in relation to the prominent physical and cultural features of the earth's surface.

SOIL MOISTURE. Water held in the root zone by capillary action. Part of the soil moisture is available to plants, part is held too tightly by capillary or molecular forces to be removed by plants.

SOIL SERIES. The basic unit of soil classification, being a subdivision of a family and consisting of soils which are essentially alike in all major profile characteristics except in the texture of the "A" horizon (or surface layer).

SOIL SURFACE FACTOR (SSF). An expression of current erosion activity. Seven categories of surface features are considered in the examination of the area with both wind and water being considered for each category. The categories are: soil movement, surface litter, surface rock, pedestaling, rills, flow patterns and gullies. Numerical values are assigned to each category, and these are totaled to determine the SSF. This value determines the erosion condition class of the area. See also "Erosion Condition Classes."

SOIL TEXTURE OR SOIL TEXTURAL CLASSES. The relative proportions of the various soil separates (sand, silt, and clay) in a soil material.

SPECIES OF SPECIAL INTEREST OR CONCERN. Species not yet listed as "endangered or threatened" but whose status is being reviewed because of their widely dispersed populations or their restricted ranges. A species whose population is particulrly sensitive to external disturbance.

STREAMBANK (and CHANNEL) EROSION. This is the removal and transport of material by concentrated flows.

STREAM COURSE. See "Channel"

SURFACE SOIL OR SURFACE LAYER. The upper most part of the soil, ordinarily moved in tillage, or its equivalent in uncultivated soils and ranging in thickness from 4 to 8 inches. Frequently designated as the "Plow layer," the AP layer or the Ap horizon.

SUSTAINED YIELD. The achievement and maintenance of a high level annual or periodic yield of the various renewable resources of public lands consistent with multiple use.

THREATENED SPECIES. A species that the Secretary of Interior has determined to be likely to become endangered within the forseeable future throughout all or most of its range. See also "Endangered or Threatened Species."

TOPOGRAPHY. The exact physical features and configuration of a place or region; the detailed and accurate description of the landforms of a place or region.

TOTAL DISSOLVED SOLIDS. The dry weight of dissolved material, organic and inorganic, contained in water.

TRESPASS. The grazing of livestock on public lands without proper authority.

TURBIDITY. An interference to the passage of light through water due to insoluble particles of soil, organics, micro-organisms and other materials.

UNDERLYING MATERIAL. The weathered parent material (See "Parent Material")

UNIT RESOURCE ANALYSIS (URA). A comprehensive display of physical resource data and an analysis of the current use, production, condition and trend of the resources and the potentials and opportunities within a planning unit, including a profile of ecological values.

VEGETATION (GROUND) COVER. The percent of land surface covered by all living vegetation (and remnant vegetation yet to decompose) within 20 feet of the ground.

VESICULAR. Soil pores are spherical or elliptical in shape. Pores of this type are enclosed by unaggregated soil, often in the form of a surface crust.

VISUAL RESOURCE(S). The land, water, vegetation and animals that comprise the scenery of an area.

VISUAL RESOURCE MANAGEMENT (VRM). The planning, design and implementation of management objectives to provide acceptable levels of visual impacts for all BLM resource management activities.

VISUAL RESOURCE MANAGEMENT CLASS. Classification of landscapes according to the kind and degree of visual change that is acceptable within that characteristic landscape.

WATER INFLUENCE ZONE. That land within and adjacent to a stream channel which is within the perimeter of the maximum probable flood.

WATER QUALITY. The chemical, physical and biological characteristics of water with respect to its suitability for a particular use.

WATERSHED. All lands which are enclosed by a continuous hydrologic drainage divide and lie upslope from a specified point on a stream.

WATERSHED COVER. The material (vegetation, litter, rock) covering the soil and providing protection from, or resistance to, the impact of raindrops and the energy of overland flow, and expressed in percent of the area covered.

WATER SPREADER. A terrace, dike or other structure intended to distribute surface water runoff and increase the area of infiltration.

WATER YIELD. The quantity of water derived from a unit area of watershed.

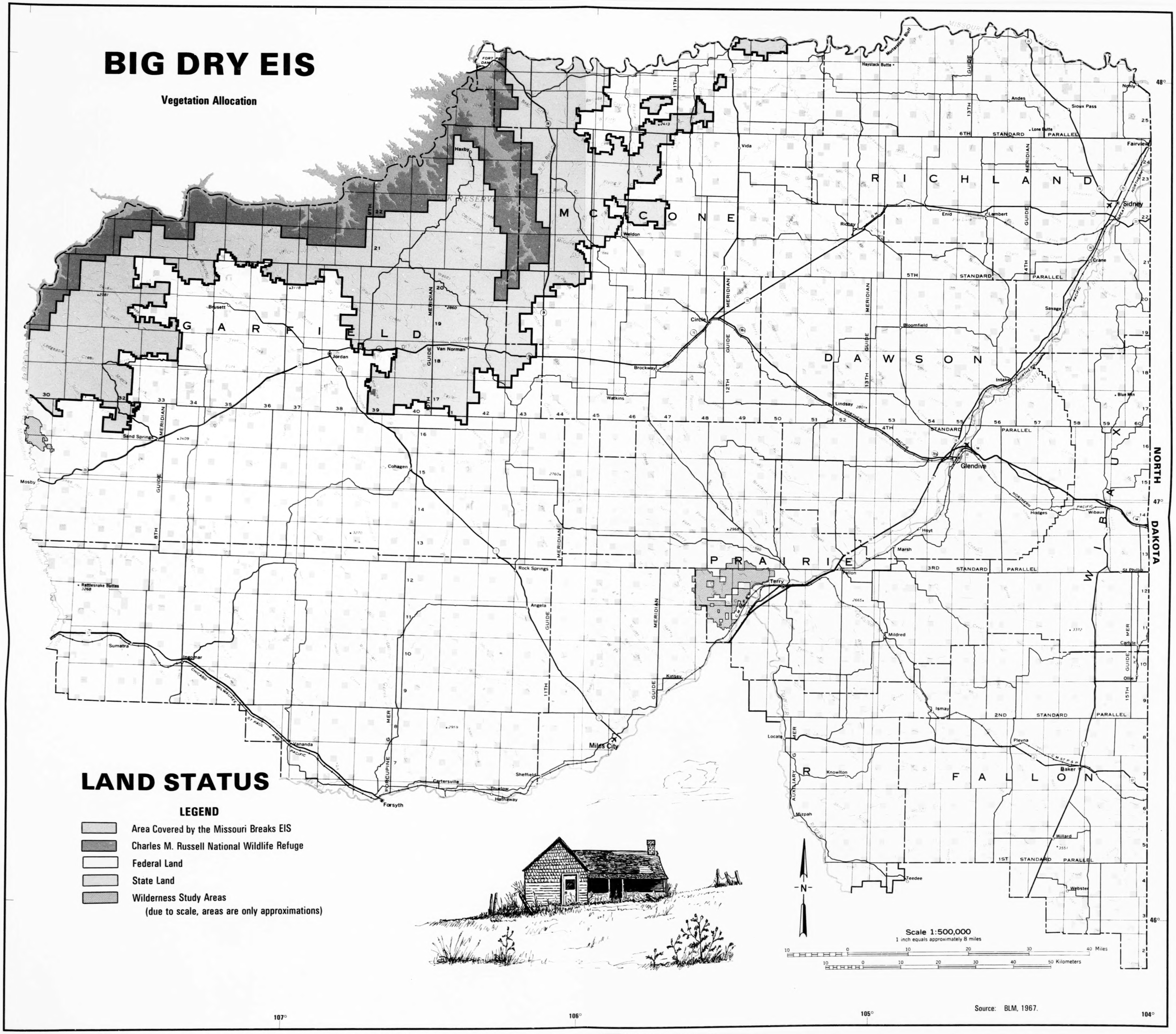
WETLANDS. Permanently wet or intermittently flooded areas where the water table (fresh, saline or brackish) is at, near or above the soil surface for extneded intervals, where hydric wet soil conditions are normally exhibited and where water depths generally do not exceed two meters.

WILDERNESS STUDY AREA. A roadless area determined to have wilderness characteristics. Study areas will be subjected to interdisiplinary analysis and public comment to determine wilderness suitability. Suitable areas will be recommended to the President and Congress for wilderness designation.

WOLF PLANT. A plant that, though the species is considered palatable, is not grazed by livestock. The term "wolfy" is often used to describe this condition which is common on underutilized crested wheatgrass seedings.

# BIG DRY EIS

Vegetation Allocation



## LAND STATUS

### LEGEND

- ░ Area Covered by the Missouri Breaks EIS
- ▓ Charles M. Russell National Wildlife Refuge
- ☐ Federal Land
- ░ State Land
- ▨ Wilderness Study Areas (due to scale, areas are only approximations)

Scale 1:500,000
1 inch equals approximately 8 miles

10 0 10 20 30 40 Miles

10 0 10 20 30 40 50 Kilometers

Source: BLM, 1967.

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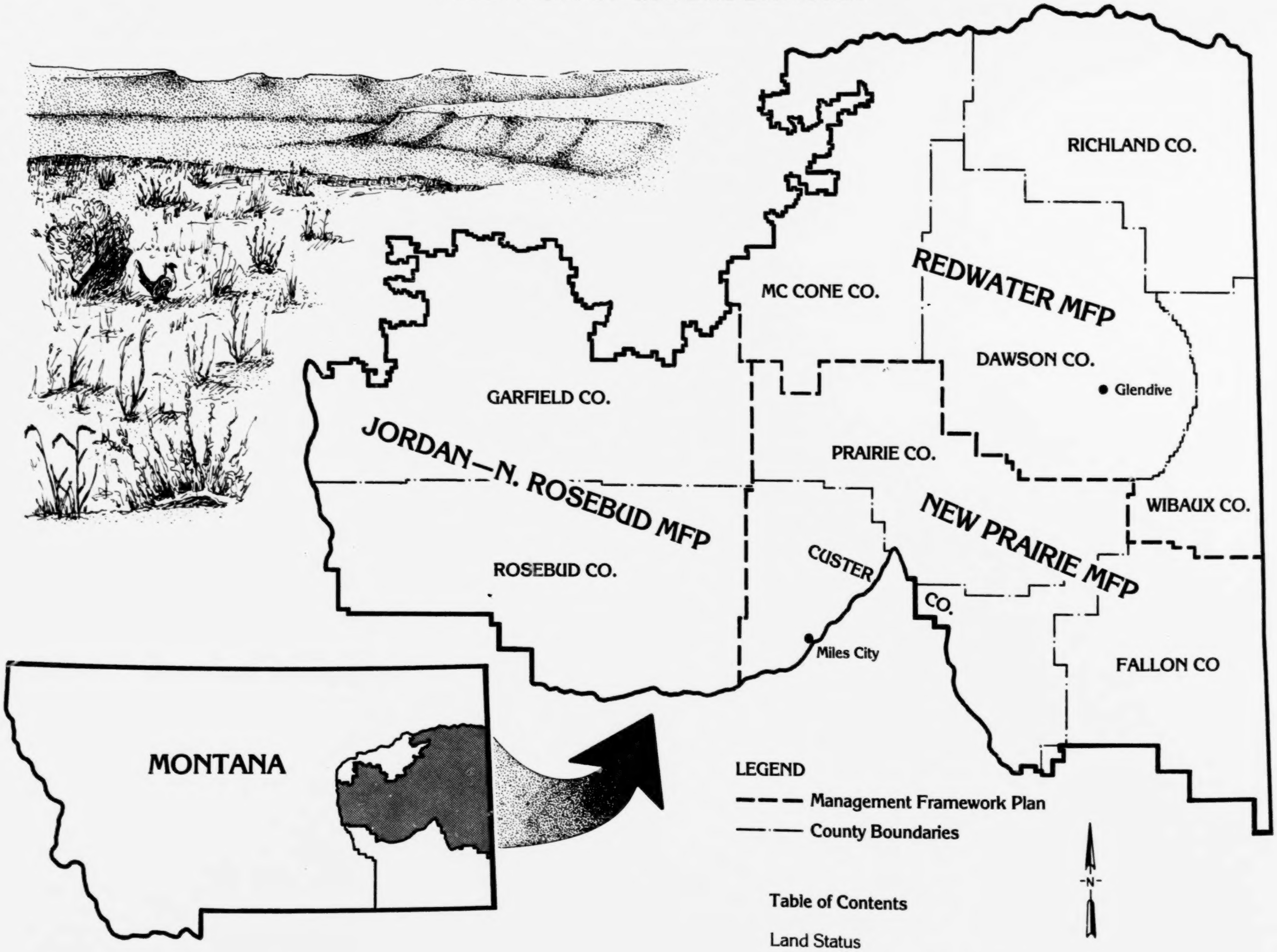
# LOCATION OF BIG DRY EIS AREA



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Allotment Overlay (map pocket)

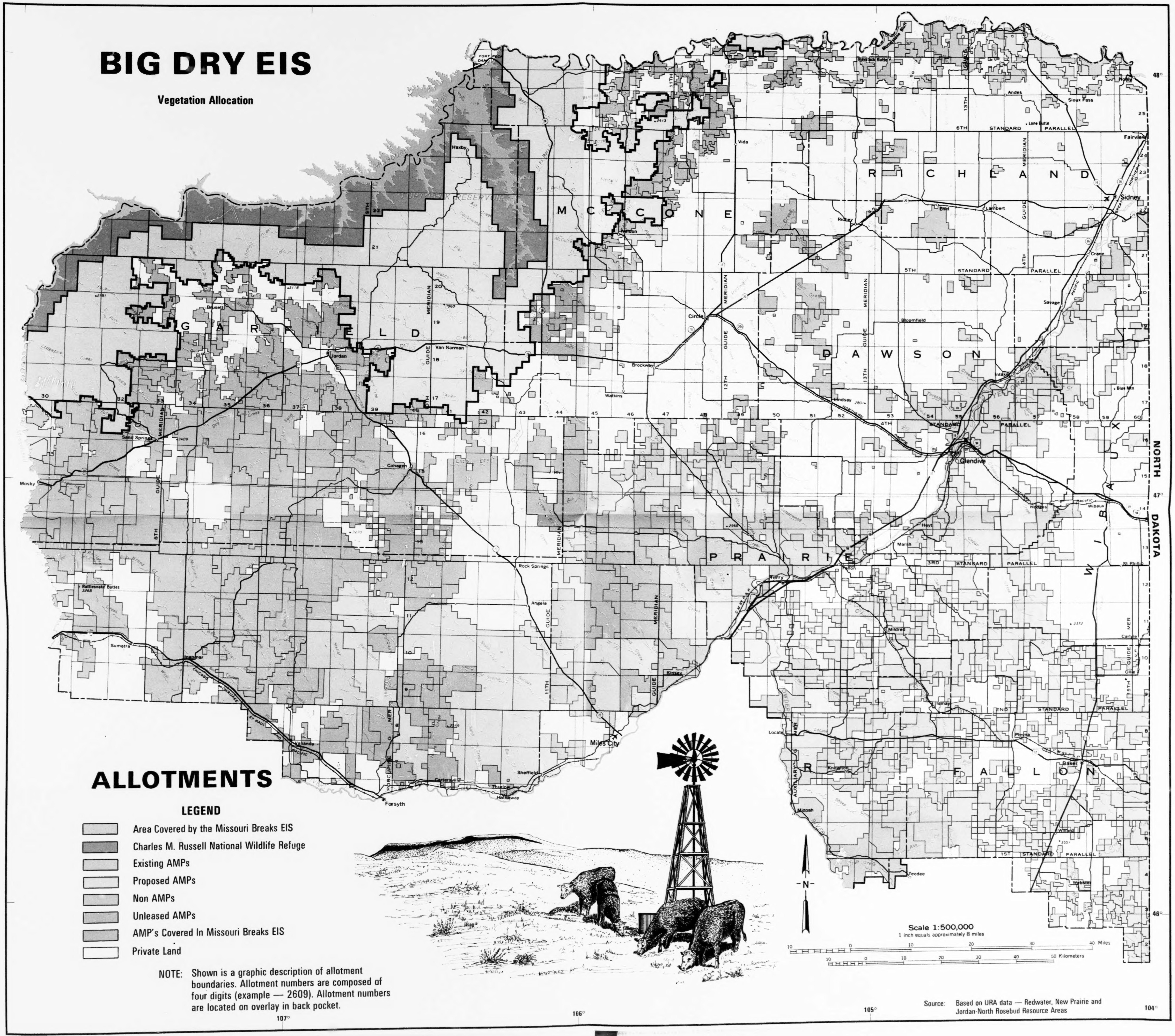
This map supplement displays resources and land ownership in the Big Dry Environmental Impact Statement (EIS) area, of which 1.18 million acres are managed by the Bureau of Land Management (BLM).

An overlay depicting grazing allotment numbers is included in the map pocket inside the back cover.

# LAND STATUS

# BIG DRY EIS

Vegetation Allocation



# ALLOTMENTS

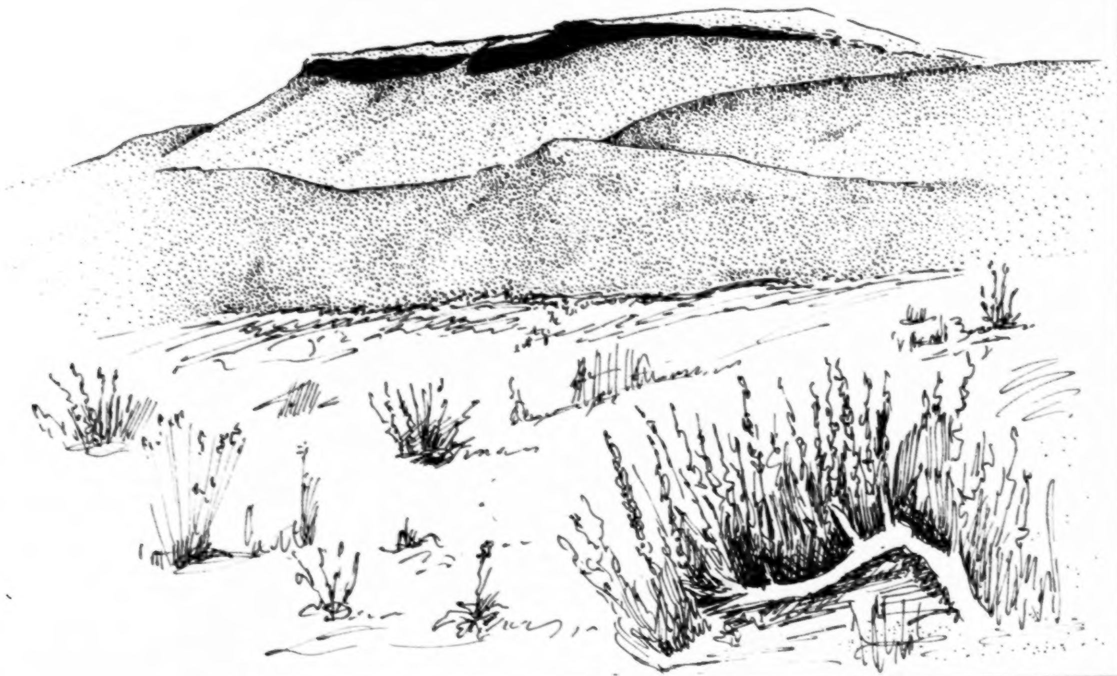
## LEGEND

| | |
|---|---|
| ▨ | Area Covered by the Missouri Breaks EIS |
| ■ | Charles M. Russell National Wildlife Refuge |
| ▨ | Existing AMPs |
| □ | Proposed AMPs |
| ▨ | Non AMPs |
| ▨ | Unleased AMPs |
| ▨ | AMP's Covered In Missouri Breaks EIS |
| □ | Private Land |

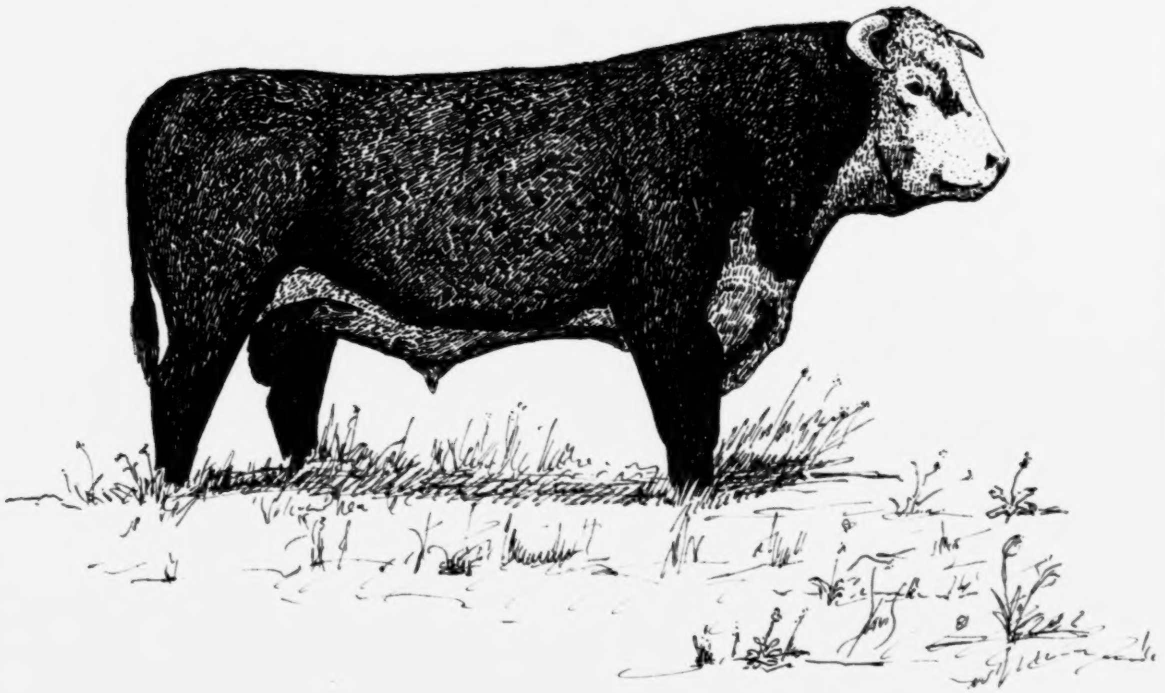
NOTE: Shown is a graphic description of allotment boundaries. Allotment numbers are composed of four digits (example — 2609). Allotment numbers are located on overlay in back pocket.

Source: Based on URA data — Redwater, New Prairie and Jordan-North Rosebud Resource Areas

# SOILS

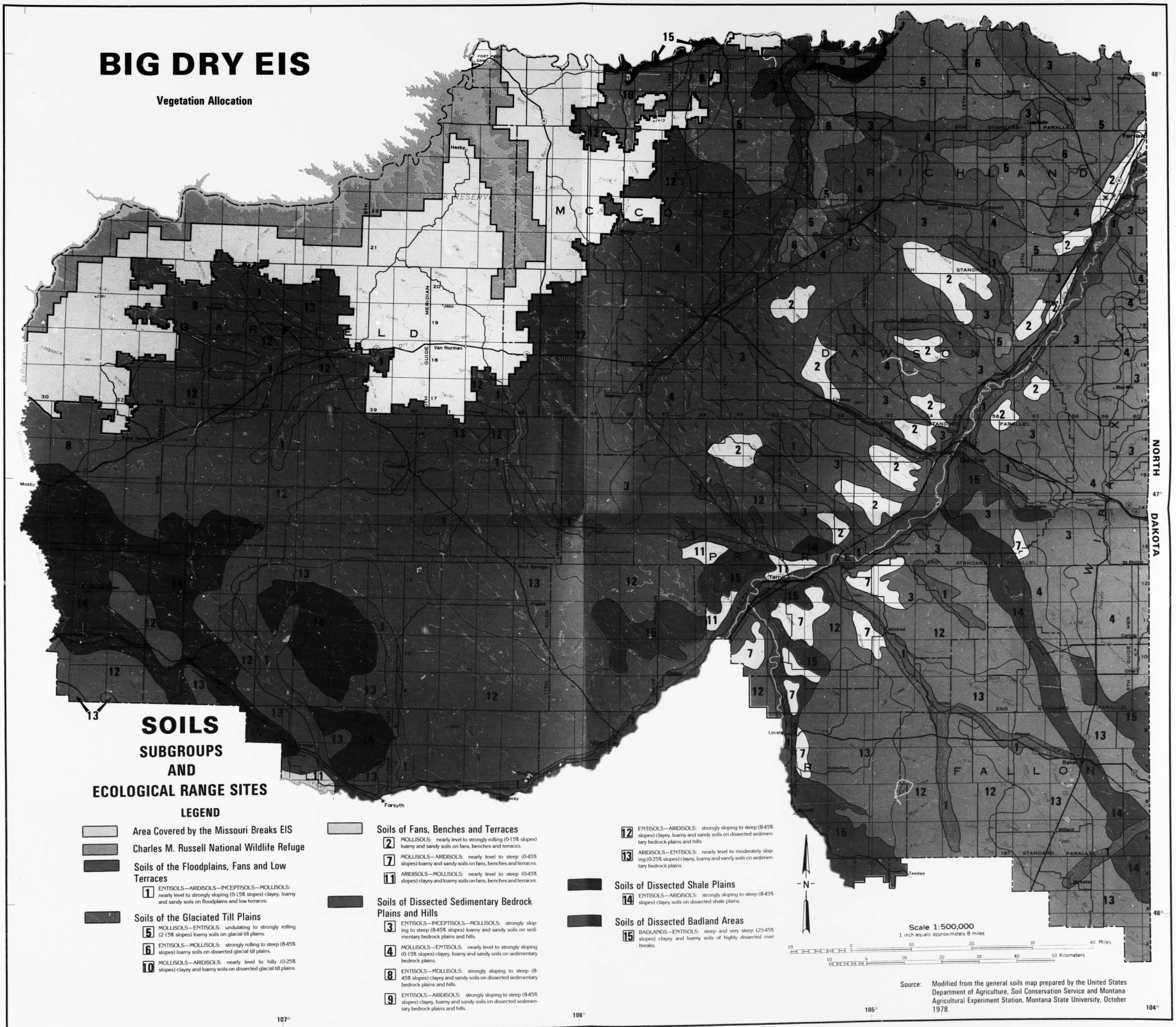


# ALLOTMENTS



# BIG DRY EIS

Vegetation Allocation



## SOILS

## SUBGROUPS AND ECOLOGICAL RANGE SITES

### LEGEND

▨ Area Covered by the Missouri Breaks EIS

▨ Charles M. Russell National Wildlife Refuge

▨ **Soils of the Floodplains, Fans and Low Terraces**

- **1** ENTISOLS—ARIDISOLS—INCEPTISOLS—MOLLISOLS: nearly level to strongly sloping (0-15% slopes) clayey, loamy and sandy soils on floodplains and low terraces.

▨ **Soils of the Glaciated Till Plains**

- **5** MOLLISOLS—ENTISOLS: undulating to strongly rolling (2-15% slopes) loamy soils on glacial till plains.
- **6** ENTISOLS—MOLLISOLS: strongly rolling to steep (8-45% slopes) loamy soils on dissected glacial till plains.
- **10** MOLLISOLS—ARIDISOLS: nearly level to hilly (0-25% slopes) clayey and loamy soils on dissected glacial till plains.

▨ **Soils of Fans, Benches and Terraces**

- **2** MOLLISOLS: nearly level to strongly rolling (0-15% slopes) loamy and sandy soils on fans, benches and terraces.
- **7** MOLLISOLS—ARIDISOLS: nearly level to steep (0-45% slopes) loamy and sandy soils on fans, benches and terraces.
- **11** ARIDISOLS—MOLLISOLS: nearly level to steep (0-45% slopes) clayey and loamy soils on fans, benches and terraces.

▨ **Soils of Dissected Sedimentary Bedrock Plains and Hills**

- **3** ENTISOLS—INCEPTISOLS—MOLLISOLS: strongly sloping to steep (8-45% slopes) loamy and sandy soils on sedimentary bedrock plains and hills.
- **4** MOLLISOLS—ENTISOLS: nearly level to strongly sloping (0-15% slopes) clayey, loamy and sandy soils on sedimentary bedrock plains.
- **8** ENTISOLS—MOLLISOLS: strongly sloping to steep (8-45% slopes) clayey and sandy soils on dissected sedimentary bedrock plains and hills.
- **9** ENTISOLS—ARIDISOLS: strongly sloping to steep (8-45% slopes) clayey, loamy and sandy soils on dissected sedimentary bedrock plains and hills.
- **12** ENTISOLS—ARIDISOLS: strongly sloping to steep (8-45% slopes) clayey, loamy and sandy soils on dissected sedimentary bedrock plains and hills.
- **13** ARIDISOLS—ENTISOLS: nearly level to moderately sloping (0-25% slopes) clayey, loamy and sandy soils on sedimentary bedrock plains.

▨ **Soils of Dissected Shale Plains**

- **14** ENTISOLS—ARIDISOLS: strongly sloping to steep (8-45% slopes) clayey soils on dissected shale plains.

▨ **Soils of Dissected Badland Areas**

- **15** BADLANDS—ENTISOLS: steep and very steep (25-45% slopes) clayey and loamy soils of highly dissected river breaks.

-N-

Scale 1:500,000
1 inch equals approximately 8 miles

10 0 10 20 30 40 Miles

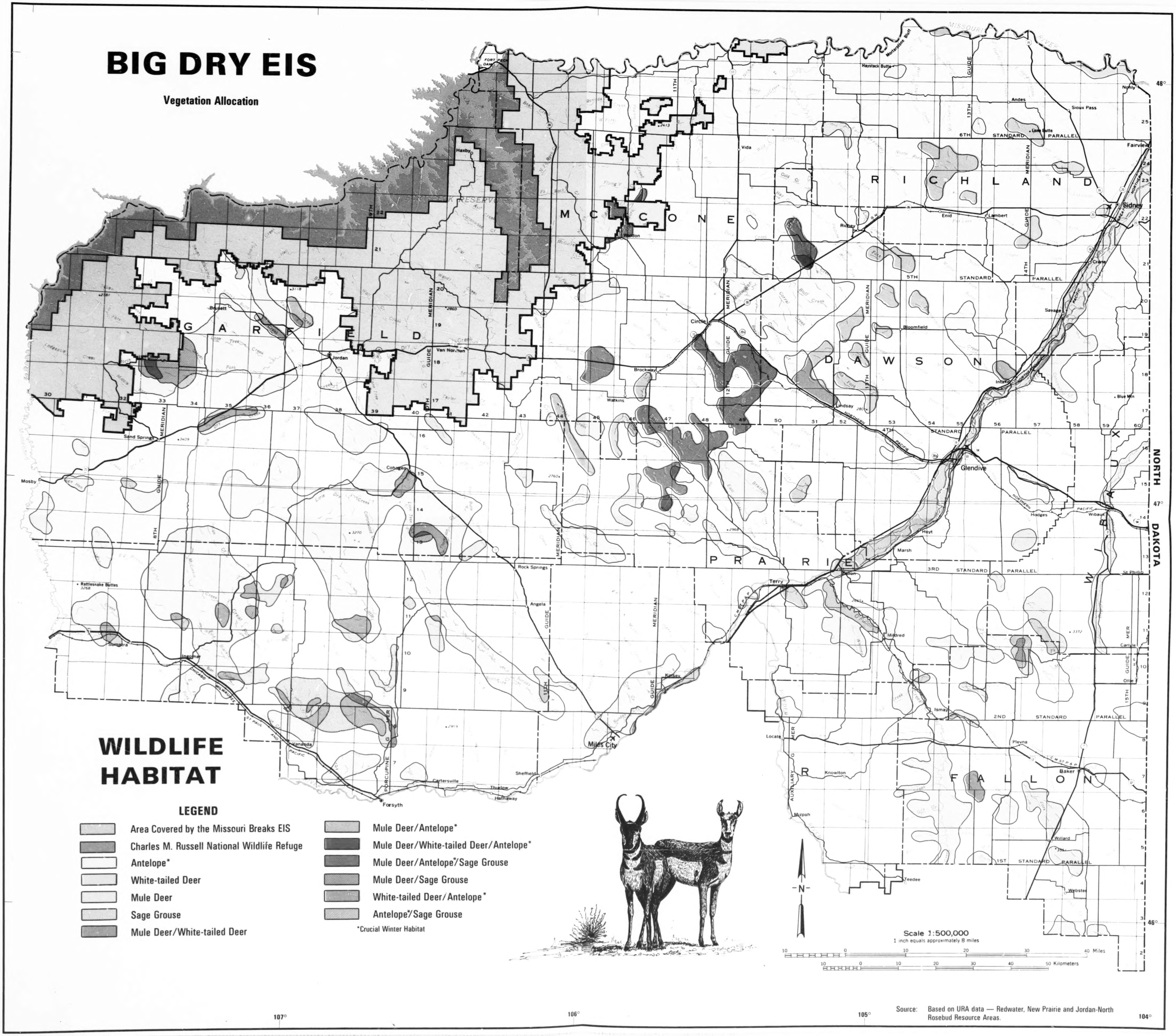
10 0 10 20 30 40 50 Kilometers

Source: Modified from the general soils map prepared by the United States Department of Agriculture, Soil Conservation Service and Montana Agricultural Experiment Station, Montana State University, October 1978.

# BIG DRY EIS

Vegetation Allocation

## WILDLIFE HABITAT



LEGEND

| | |
|---|---|
| ▭ | Area Covered by the Missouri Breaks EIS |
| ▭ | Charles M. Russell National Wildlife Refuge |
| ▭ | Antelope* |
| ▭ | White-tailed Deer |
| ▭ | Mule Deer |
| ▭ | Sage Grouse |
| ▭ | Mule Deer/White-tailed Deer |
| ▭ | Mule Deer/Antelope* |
| ▭ | Mule Deer/White-tailed Deer/Antelope* |
| ▭ | Mule Deer/Antelope*/Sage Grouse |
| ▭ | Mule Deer/Sage Grouse |
| ▭ | White-tailed Deer/Antelope* |
| ▭ | Antelope*/Sage Grouse |

*Crucial Winter Habitat

Scale 1:500,000
1 inch equals approximately 8 miles

10 0 10 20 30 40 Miles

10 0 10 20 30 40 50 Kilometers

Source: Based on URA data — Redwater, New Prairie and Jordan-North Rosebud Resource Areas.

# WILDLIFE HABITAT